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The Builder.

AUGUST 8, 1896.

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Perspective View, Second Premiated Design.—By Mr. J. M. Brydon, F.R.I.B.A. ..... *Double-Page Photo-Litho.*
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Architecture in the Capital of Tasmania.

ENTERING Hobart Bay from the open sea a panorama of mountains is unfolded to the visitor that for varied outline and beauty can hardly be surpassed anywhere in the world. In the midst Mount Wellington rears its precipitous face 4,000 ft. and more into the clouds, and on its lower slopes, dying into the blue waters of the Derwent, stands Hobart, the capital of Tasmania, and the most English-looking city in Australasia. As cities go it is not large, numbering a population of about 35,000, but it covers a considerable area and appears larger than it is, owing to the configuration of its site. Except in the centre of the business quarter the houses are not closely packed, and an abundance of foliage relieves the prosaic lines of the buildings. These are far more English than Australian in type, especially amongst those of less recent date; and, indeed, the whole aspect of the place is much more that of an English country town than a modern city under the Southern Cross. The climate is that of the South of England, but fresher and brighter, so that the verandah, the typical feature of most Australian buildings, is here by no means prominent.

Amongst the more important buildings, the churches easily take the lead on the score of architectural merit, the Anglican communion alone possessing specimens of the work of three noted architects. The Cathedral of St. David stands on a central site near the Post-office and Government buildings, and is the work of Messrs. Bodley & Garner. The nave and transepts were built some time ago, but the chancel has only been finished about two years. The style is Gothic, of course, and of the fourteenth century period. In plan the church is of the ordinary type, viz., nave, aisles, transepts, and chancel, with a morning chapel on the south and an organ-chamber and clergy vestry on the north side, the choir vestry being below the sacrarium. As might be expected, the design is simple in its lines, but full of grace and charm, and when the proposed bell-tower with the connecting arcade is erected, some 50 ft. or so away from the south door, and close up to the street line, the whole group, though of medium size, will easily hold its own as the most graceful cathedral of the south. In the interior the nave, aisle, and transept walls are left rough, evidently to be plastered at some future time, but the chancel and its aisles are faced with freestone of a pleasant light brown tone. Where all is so good it may be ungenerous to criticise, but the peculiar flat, lozenge-shaped piers of the arcades on each side of the chancel are somewhat weak and unsatisfactory in appearance, though excellent from a practical point of view, as obstructing the passage of sound from the organ and the view of the chancel from the chapel as little as possible. The flat pointed arches supporting the roofs of the chapel and organ-chamber also strike the eye rather unpleasantly, and the wall panelling on each side of the large five-light east window is at present a little out of key with the rest of the work. The latter no doubt will come all right when a large and rich reredos is erected, and this is evidently intended, as a blank recess has been left for it under the east window. For colour effect the designers evidently relied on stained glass, and several windows have already been inserted, but none, unfortunately, rise above the level of mediocrity. One other source of regret is the fact that the deanery was not designed by the same architects as the cathedral, for, though a fair building of modern Gothic design by a local architect, and one that would pass muster elsewhere, it is a jarring note in an otherwise almost perfect composition.

Away up Goulburn-street, at an acute angle where another road joins it, stands the small church of St. John from the designs of the late G. E. Street. It was built a good many years ago, but is none the less interesting on that account, and its steeply-sloping and irregular site helps it not a little. The most marked feature is the small bell-turret at the N.E. angle of the S. aisle and chancel; but the whole building, though simple in its lines, shows the hand of its architect. It has however been marred in detail by those who carried it out, especially in the interior, where the nave roof, a collection of match-wood rafters, is a mere parody of the solid-looking trussed-rafter roofs to which Street was so partial.

In Macquarie-street the church of All Saints is stated to be by Mr. Butterfield and is a pleasing composition in itself, but spoilt by a bad site, the church being below the road level. A small tower and spire of graceful outline set off an otherwise rather ordinary building.

Somewhat to the west of the foregoing, in Harrington-street, a spacious block of land has been acquired by the Roman Catholics and a large pile of buildings erected thereon, consisting of the Cathedral, a convent, the Bishop's house, and other subsidiary structures. The general effect is not so good as it would have been had the site crowned a slope instead of being halfway up it, but even as it is the group is effective. The Cathedral is larger than St. David's and consists of nave, aisles, transepts, choir, transeptal chapels, sacristy, and a large nuns' choir, the latter opening on to the side of the high altar. The great organ is carried on a stone gallery at the west end, but externally this portion is still unfinished, though the foundations are in. There is no tower at present, and the general outline somewhat recalls that of the Anglican Cathedral, helped also by the fact that the architecture is of the same period, but though very fair in itself it is not to be compared with St. David's for merit. The convent is a large building of three stories and varied outline, but Victorian in detail. Of the other churches two stand out in marked prominence from all points of view; St. Thomas, a Late Gothic building with a large square tower of poor detail but impressive from its position, and St. George, Battery-point, a Greek edifice with a portico *in antis* and transeptal projections from which rise an octagonal tower, a landmark to all who who enter the bay, and in general outline very creditable to its builder-architect designer of fifty years ago. But over the interior it is as well to draw a veil; it may be imagined but not described. Of the churches of other denominations there is little to say; the only fair example being the Congregational Church in Davey-street. It is hemmed in by buildings, but shows a central tower and spire of good outline with a huge roof over the church behind it. The detail is Early English, and correct. There is another and much more ornate Congregational Church in Elizabeth-street, costly, but showy and meretricious in taste. At Fern Tree and Kingston, however, it is a pleasure to note recently-erected wooden churches

by a local architect, which, though small, are of picturesque design and rather striking for the full deep red colour they are painted, the roofs being shingled.

As Hobart is the capital of the Colony, the Government buildings are much in evidence, and, being grouped on one side of Macquarie-street, make, together with the town-hall, the impression that repetition and mass never fail to produce. But the detail, Italian of a kind, is commonplace, and the last addition to the Post-office, a perfectly plain front with holes in it, is mere builders' work. If the Government, in these depressed times, cannot afford to retain a properly-trained architect as a permanent official, it would be well to entrust prominent buildings to an independent member of the profession. The most important Government building of all is the original Custom House, as it lodges the Houses of Parliament until the time arrives when the Colony can afford buildings specially designed for the purpose. Meanwhile legislation is carried on in a structure which, though plain, is dignified and in marked contrast to the later Government buildings. It consists of a long stone front with emphasised centre and wings and rounded ends, treated as a rusticated basement and plain upper story somewhat in the manner of chambers. It was built many years ago, when convict labour in any quantity was available. Hobart is fortunate in possessing quarries of excellent freestone of a light brown colour, and of this most of the Government buildings are erected, except the State schools, which are of brick with stone dressings. The most noticeable of these is the one on the Sandy Bay road, at the corner of Hampden-road; a very good building on a most favourable site, for approached in any direction its grouping is excellent. Indeed, looking down Hampden-road by evening light, the slated turret with its supporting gables and stretch of plain roof standing out against the Barrack-hill with its old buildings, and behind that again the blue mass of the mountain, makes a picture not easily forgotten, and one well worth perpetuating on canvas. The detail of the school is however capable of considerable improvement; it smacks too much of Victorian effect, especially in the tile fillings to the tympana of the windows, the wiry woodwork, and (worst of all) the cast iron ornamental (?) spandrels to the verandah on the northern side. Another smaller and less pretentious but fairly satisfactory school has lately been completed in Macquarie-street, in the direction of the Cascade Brewery. It is a gabled structure of brick with good and substantial stone dressings, and somewhat recalls the type of schools of the smaller sort common in Yorkshire. The University in the Domain must also be mentioned, but unfortunately not much can be said in its praise; it is a lean and weak version of fourteenth-century Gothic. The public Hospital is composed of many buildings erected at different times, and hence cannot be classed with those of other Australian cities erected from a comprehensive design, but recent additions have been made, consisting of a nurses' home and operating block, which show good solid work and sensible though not strikingly-artistic treatment.

The commercial and business premises of Hobart are mediocre in quality as a whole, though a few stand out somewhat from the general dead level of uniformity. Of these the two-storied Commercial Bank of Tasmania, an Italian building and fairly pure in design, is perhaps the best. Entrances at each end of the façade are the most prominent features, and good relief is given to the front by its attached columns. The Union Bank of Australia (late the Bank of Van Diemen's Land) is larger and more imposing but not so good in quality, it is probably intended for French Renaissance, as the ground story is fully rusticated and the pilasters of the upper story are panelled, but the whole design is lacking in the refinement properly characteristic of the style. At the opposite corner are the offices of the Australian Mutual Provident Society, a substantial freestone structure recalling the design of many of the office buildings of Manchester, a kind of modern Gothic in which round and segmental arches and corbelled lintels are mingled with Gothic shafts and mouldings of vigorous type; though the whole has a rather mechanical appearance. The most showy business place in Hobart is the corner block called "Millers Buildings," consisting of a chemist's and costumier's shops and offices over. It is three stories in height, of coloured and tuck-pointed red brick and stone dressings, but the latter are painted (!) stone colour on the ground story. An original feature is the semi-octagonal recessed balcony at the corner of the second story, with turret roof over. The design is a mixture of Gothic, Renaissance, and Modern forms that do not harmonise very well, but the redeeming feature of the whole building is the use of substantial piers between the shop windows and solid stone lintels over, though these are no doubt backed up by iron girders. The most architecturally satisfactory place of business is Salier's Warehouse in Collins-street, an old stone building erected as an auction mart. It is so unlike a modern example and yet so suited to its original purpose that a few words of description must be spared for it. The main front wall is recessed about 8 ft. from the street line, and on the ground story a stone arcade of four arches, one of which is the entrance, forms a covered verandah for the exhibition of sale notices and the gathering of the bidders. The upper story is lit by three windows and finished with a parapet. The quiet simplicity and reticence of the design is quite refreshing, and, though the detail is not too pure, the only glaring faults are the crudity of the shells in the tympana of the upper windows, and the common cast iron balustrade to the verandah. A quite recent Queen Anne shop in Elizabeth-street must not be forgotten, as it is well designed throughout, and the wooden street verandah is especially noticeable where all others are bad. The details are refined, and everything down to the iron grilles and shop tiling, have been thought over, and there is but one serious defect, probably not attributable to the architect, viz., the dressings of the red brick upper story, which should have been stone are in cement. And there is also the Church of England book depôt adjoining the cathedral, a stone building well treated in fourteenth-century Gothic style, with good stone piers and a timber and plaster cove over the shop front instead of the usual wooden fascia.

The domestic buildings of Hobart are wonderfully assisted by the natural features of site and surroundings, and dwellings otherwise commonplace cannot help looking well on steep slopes which necessitate high foundation walls on one side; and there are many such. Where verandahs occur they are not of the all-round type common in Australia, but are usually confined to one side of the house and glazed in at the ends, or even their whole length, as a protection against wind and wet. But of actually well designed modern dwellings there are not many. "Bishopscourt" has recently been enlarged, and shows a well-treated group in red brick and stone, with high pitched shingled roofs. Another recent red brick and slated dwelling may be seen at the town end of Macquarie-street, in the doctors' quarter, which shows considerable merit. The upstairs balcony is well managed, but the entrance is not important enough for the house, and the lead-lined terminal of the octagonal bay is crushingly heavy. On the outskirts of the town, high up on the Huon-road, whence there is a glorious view of mountains and sea, a Government official has built himself a half-timbered dwelling, recalling in its general effect his old black and white timbered home in the English Midlands. The casement window frames, of natural coloured wood, project, however, in front of the timbers, and have a rather curious effect, but, as a whole, the attempt at reproducing old English work is a success. The weakest part of the design is the treatment of the long, straight chimney-stacks and the crudity of the set-offs and oversailing courses of the chimneys.

Here and there about the city and its surroundings one may see other examples of domestic work that are fairly satisfactory, but not sufficiently marked to call for special notice. There is, however, one building that must have a few lines, viz., Government House, in the Domain, one of the most charmingly situated residences a Governor is likely to obtain in any of Great Britain's many colonies. From a distance, and especially from the water, its grouping and outline are very satisfactory, and only on nearer inspection do the faults of detail reveal themselves. It is fourteenth-century Gothic in treatment and possesses a square porte-cochère entrance tower, besides two well-marked turrets and many gables. The gardens surrounding it are well kept, but the magnificent Domain, of a thousand acres, is still unimproved, except for the encircling road, and the underscrubbing of the bush. When Tasmania has increased sufficiently in population and wealth to warrant further outlay on this inheritance of the people, with its unrivalled views of mountain, sea, and river, it is to be hoped the best skill obtainable will be employed, for in competent hands it might be made a pleasaunce second to none in the world.

But there is generally a reverse to every pleasing picture, and diverging from the æsthetic to the severely practical, the present insanitary condition of Hobart cannot be overlooked. A rivulet flows through the centre of the town, and receives the drainage of all the dwellings on its banks, together with that of several hundred water-closets. At the lower part of its course its banks are level, and its waters tidal, so its condition may be better imagined than described. And in this lower part of the town, with the walls

of some of its wards almost overhanging the stream, stands the public hospital. Just at this part of its course the bed of the stream is concreted, so the evil is somewhat reduced; but even so, on a warm, moist day the odour of this open sewer is so unpleasant as to cause the stranger passing by to apply his handkerchief to his nose, and hurry on. What must it be for the patients? But apparently, if inhabitants of the town, they are inured to smells, and heed them not; for, elsewhere beyond the immediate vicinity of the rivulet, the water channels of the streets are the public sewers, and three out of every four are formed of cobble-stones! Of course, earth closets or cesspits are used for fœcal matter, but soap-suds and cabbage water are quite as foul in smell, though not quite so dangerous. It is no wonder that only a few months ago an epidemic of diphtheria visited the city; and a few middies being attacked, the Admiral of the Fleet then in harbour raised his voice in protest. But it will take almost an earthquake to rouse the City Council from their apathy and force them to action. Of talk there has been and it seems likely there will be no end, even the Premier having been enlisted to defend the fair fame of Hobart and to prove that it is no worse than, say, Melbourne. Plans and estimates of schemes providing proper drainage have been prepared, but the motive force to give them effect is lacking, and indeed, many of the inhabitants are so enamoured of their smells, or their money, that they prefer things to remain as they are and make excuses accordingly.

The scheme of Mr. Mault, the Government engineer, is certainly open to criticism, as it does not provide for the drainage of the suburb of Sandy Bay, which at present discharges its refuse separately into the harbour; and that of the city itself is to be run out straight from the foreshore at Macquarie, or another adjoining point, to beyond low water mark, in the hope that it will be carried away by the tide and the scour of the river Derwent. The objectors to the scheme contend that the only result will be the fouling of the foreshores of the bay; but as Hobart is small, the bay large, and fish numberless, it is not likely to be a serious nuisance for many years to come. To convey the sewerage to irrigable land pumping would be necessary, and the mere suggestion of such an extravagance would send property-owners into a fit from which they would scarcely recover. It is much to be feared that either a severe and generally fatal epidemic, or the entire diversion of the already lessening stream of summer visitors, will be necessary to force the responsible authorities to a decision: but it is to be hoped such a severe lesson to the inhabitants of the pretty little capital of Tasmania may not be necessary.

NOTES.

The East London Water Supply.

THERE seems to be exaggeration and over-statement on both sides in the controversy which has been going on between some of the inhabitants of East London and the Water Company. Mr. Crookenden, the Secretary of the Company, has no doubt claimed rather too much for his Company; it is in the nature of an official representative to do so, it may perhaps even be said that he is expected by his Company to make the best case for them; but his letters are reasonable on the whole, and lead us to the conclusion that the East London Water Company is really doing its best for the public under very unfortunate circumstances. The independent inquiry made by a representative of the *Times*, and published in their issue of the 3rd, shows plainly enough how little the statements of the ordinary inhabitant can be depended upon for accuracy, and how little effort at temporary storage is made even where there were available receptacles. On the other hand, there can be no doubt that a general move in the direction of the erection of permanent storing cisterns, even if the people could afford to put them up, would be in a sanitary sense a retrograde step.* The Company ought to make every effort to restore constant supply as soon as possible, having once undertaken it.

An Archæological Commentary on Pausanias.

IT has long been an open secret that Mr. G. A. Frazer of Cambridge, whose "Golden Bough" met with such marked success, is preparing a commentary on Pausanias, and much disappointment has been felt that its appearance has been so long delayed. It is now in part anticipated by the appearance of the first volume of an edition of Pausanias by Drs. Hitzig and Blümner, dedicated to Professor Curtius. This first volume includes the "Attica" only; it consists of the text of the "Attica" carefully revised, and with a complete "critical apparatus." This in itself is much needed, as it is now forty years since the edition of Schubart appeared. The text is followed by a commentary in the form of notes, giving in a remarkably succint form the results of archæological research and a wonderfully complete bibliography. It is impossible here to give details, but the book may he confidently recommended to all readers of German. If Mr. Frazer delays much longer it ought to appear in English. It covers, of course, a wider field than the "Ancient Athens" of Harrison & Verrall, and, unlike that book, is addressed to the professional, rather than the popular, reader. The commentary is illustrated by eleven plates.

The Paris Exhibition.

As we had already indicated, the design to which the first premium had been awarded for the larger palace is not to be carried out as it stands. M. Picard, the General Director of the Exhibition, has arranged that M. Girault, the winner of the first premium for the small palace, and of the fourth premium for the large one, is to have the direction of the whole, and the carrying out of the large palace is to be shared among MM. Deglane and Binet, for the main or central portion of the building; M. Thomas, for the rear section facing the Avenue d'Antin, and M. Louvet for the portion intermediate between these. This is rather hard on M. Louvet, to whom the first premium was awarded; but it is stated that all the architects named have cordially accepted the situation, and agreed to work together harmoniously. That part of the Parisian public which takes an interest in architecture is moved with considerable curiosity as to the ultimate outcome of these combined efforts. Work will probably be fairly commenced about September 15; and in October will commence the demolition of the Palais de l'Industrie; so we have seen the last Salon held in a building not indeed beautiful or remarkable, but connected with a long train of artistic associations.

* A *small* cistern, however, easily got at and easily cleaned, ought to be erected even where the supply is really constant, as there are occasions when water must be cut off for a short time—for repairs to a main, for instance. But the large storage cistern ought to be a thing of the past.

Baker-street Station.

A CORRESPONDENCE has been going on in the *Times* between the Chairman of the Metropolitan Railway Company and the agent of Lord Portman's estate, which arises out of some remarks by the Chairman at the recent half-yearly meeting of the Company. The latter poses as the virtuous body which would fain give the public a nice and commodious station if it were not for the grasping landlord in the person of Lord Portman. One admission in the correspondence of the chairman of the railway practically gives up his whole case. He admits that the Baker-street Station is inadequate for the traffic. Under these circumstances the proper and usual course for the Company to take would be to apply to Parliament for power to purchase such adjoining land as is required for the purposes of the railway. It is absurd to accuse Lord Portman of obstructing the designs of the Company. If the latter show, as undoubtedly it could, before a Parliamentary Committee that more ground is wanted for the extension of the station, compulsory power to purchase would be given to it. Of course, when there is no such power behind the Company, Lord Portman will naturally bargain so as to get the Company to take such land or do such improvements as he thinks most to the interest of his property. Why, we may ask, did not the Company first go to Parliament for compulsory powers, and then negotiate with Lord Portman? Is the Board trying to throw dust in the eyes of the public, and make the latter believe that it is anxious to improve the wholly inadequate station at Baker-street, when it does not really wish to do so?

Association of Waterworks' Engineers.

THIS newly-formed Association, which held its first meeting recently at Nottingham, will we hope be of great service in enabling Waterworks engineers to exchange ideas and experience, and to assist each other forwarding and improving the practice of a very important and intricate branch of engineering work. It is to be hoped, however, that the discussions will be carried on in a purely scientific spirit, and not with a view to the special interests of the properties for which waterworks engineers are concerned. There seems to be some need of a *caveat* in this direction, for we observe that in the address of the President, Mr. Gaskin, he remarked on the decision of the Local Government Board against compelling water companies to give a three-gallon flush for closets (a decision which most sanitary authorities considered to be mistake), and observed that "it was a decision in which the majority of waterworks engineers most heartily concurred," a remark which was

followed by "applause." That can only be regarded as an intimation that the water-works engineers regarded themselves not as people engaged to promote the highest principles of sanitary work, but as water-companies' officials concerned in reducing the output of water in the interests of their employers.

Belfast City Hall Competition.

An architect sends us the following extract, being Clause 17 from the instructions issued to architects in this competition:—

"In the event of the author of the design placed first in the order of merit being employed to execute the building as architect, he shall receive as remuneration a sum equal to 5 per cent. on the amount of the tender accepted for the erection of the building. It is to be clearly understood and agreed that this sum will be the entire remuneration, and is to include all professional charges and expenses in connexion with the design, superintendence, and completion of the new building, excepting only quantity surveyor's fees and clerk of works' salary, which will be paid by the Corporation."

The architect who sent us the clause has declined to compete, and we hope others will do the same. Every architect, especially on a large and important building, is entitled to his travelling expenses in superintending the building, and for the Corporation of a large city to endeavour to compel competing architects to contract themselves out of this right is a shabby and unjustifiable proceeding. It appears also that, on enquiry, it was stated on behalf of the Town Council that even should they desire to add to the scheme of the building materially after it was started (a perfectly possible event), the architect would only be paid the fee calculated in the original estimate. The clause altogether is a retrogade movement, as there has been a tendency lately for large corporations, at all events, to show an inclination to treat competing architects more fairly than they used to be treated.

Devonshire House, Piccadilly.

We read that the Duke of Devonshire proposes to pull down the high wall in front of his house in Piccadilly. Devonshire, once known as Stratton, House was built by Kent for the third Duke (*ob.* 1755) at a cost of, reputedly, 20,000*l.*, besides 1,000*l.* given to Kent by the Duke. The former main entrance was replaced in 1840 by a portico, and the state staircase of marble with gilt and glass balustrade, in the north front as altered by D. Burton, is also modern. It stands on the site of the house consumed by fire in October, 1733, which had been built by Hugh May in or about 1665 for John, Lord Berkeley of Stratton, and is described in his Diary by Evelyn, who had some share in the planting of the garden. He writes (Sept. 25, 1672):—

I am assured it stood him in near 30,000*l.* It is very well built, and has many noble rooms . . . . consisting but of one corps de logis . . . . The staircase [painted by Laguerre] is of cedar, the furniture is princely . . . . and, above all, the gardens, which are incomparable by reason of the inequality of the ground. The holly hedges on the terrace I advised the planting of. The porticos are in imitation of an house described by Palladio.

That house, bought by the first Duke of Devonshire in 1697, had been for some while previously the residence of the Princess Anne. The ground had belonged in part to Hay Hill Farm, being in the plot "Penneless Bank" of a plan, 1676, of Lord Berkeley's estate, in the Crace collection.

Hampstead Heath.

A correspondent residing at Hampstead writes:—"At a meeting of the London County Council on Tuesday, July 7, the Parks Committee reported that it was their intention to preserve Hampstead Heath as far as possible in its natural state. They therefore recommended the Council to reduce the number of 'workmen' on the Heath to three, whose work would be strictly limited to clearing up refuse, clearing out water-courses, repairing footpaths, staking and tying trees, and similar indispensable operations. This recommendation was adopted. Public opinion urgently demands that some person or persons of taste should be appointed to overlook *all* work done on the Heath, also that many of the newly-planted trees (said to be nine thousand) should be removed, as it is universally felt they are misplaced."

Edinburgh Architectural Association.

The second number in Volume III. of the Transactions of the Edinburgh Architectural Association contains a remarkable amount of interesting matter in a small compass. In his opening address the President, Mr. W. W. Robertson, took for his subject "The Journal of James Playfair, Architect, 1783-1793," a man who did much work in his day, though little of it seems to be left. The other papers are chiefly concerned with descriptions and records of notable buildings, with plans and sections, such as Crichton and Borthwick Castles, the Carmelite Church at South Queensferry, &c., and an interesting paper on Ancient Mural Decorative Art in Scotland by Mr. Thomas Bonnar, F.S.A. (Scot.). The whole number is worth reading, from cover to cover.

The "Prix de Rome" Designs.

The ten competition designs for the "Prix de Rome" in Architecture have been opened for exhibition at the École des Beaux-Arts at Paris, the subject being a rather unusual and interesting one—"A Maritime School in neighbourhood of a large seaport and built on a plateau at the extremity of a lofty promonitory." Some of the designs are of more than average merit.

St. Paul's Clock Face.

We are very glad to hear that the Dean and Chapter of St. Paul's Cathedral have decided to remove the white glass from the middle of the clock face (which not only defaced the west front, but rendered the clock illegible), and to restore once more the old skeleton face, by which means the strongly-marked black shadow on which Wren so much relied for effect will be regained.

Tennessee Centennial Exhibition, 1897.—We are asked to call attention to the fact that this exhibition will be opened on May 1 at Nashville, Tennessee. Although the exhibition is not under the auspices or patronage of the United States Government, every arrangement will be made with the view of making this an occasion through which closer commercial relations may be cultivated between the people of the United States, and those of other countries. The rapid and substantial development of the resources, both industrial and agricultural, of that section of the United States known as "the South" warrants the assumption that this proposed exhibitton will be of great profit to those making exhibits alcng commercial lines. In the matter of exhibits from foreign countries, arrangements will be made to enter these free of duty, and no charge will be made for space in the exhibition buildings.

THE ROYAL ARCHÆOLOGICAL INSTITUTE AT CANTERBURY:

CONCLUDING NOTICE.

On Monday, July 27, a large party of members of the Institute and their friends, numbering over ninety, went by train to Sandwich, where St. Bartholomew's Hospital was first visited. The chief object of interest is the chapel, originally an aisleless parallelogram of early English date, with nave and chancel, to which a large north chapel was very soon added. On the north side of the altar is a fine and perfect effigy of a knight in complete mail, with his shield lying on his breast. Lord Dillon was inclined to date this as *circa* 1230. St. Peter's Church, the next place visited, was described by the vicar, the Rev. W. Flower. It once consisted of a Decorated nave and aisles of three bays, with central tower, and Early English chancel, with later windows and aisles of three bays. But the tower fell in 1661, and so ruined the south side that it has not since been rebuilt. Under the east end of the old south aisle is a "bone-hole," in form of a vaulted crypt. In the north part of the church are three good monuments, two with effigies. A move was next made to St. Clement's Church, which was described by the vicar, the Rev. A. M. Chichester. The oldest part of the church is its fine Norman central tower, to which are attached a Decorated chancel with aisles and a Perpendicular nave and aisles. The chancel aisles overlap the tower but do not extend to the east end. The old fittings include the stalls in the chancel, which once had misericords, and a fine Perpendicular font with shields of arms. In the south chancel aisle is a mural tablet of good design made wholly of moulded brick, of the date 1715. From St. Clement's church the party proceeded to the ancient Town-hall, were they were received by the Mayor of Sandwich, who gave a brief history of the building. It is a most uninviting structure externally, but retains curious Elizabethan and later fittings. The borough maces and staves were also shewn. After luncheon carriages were in readiness for Richborough, where the Roman fortress was examined, so far as possible under the dense growth of ivy that covers the walls, under the guidance of Mr. G. E. Fox. The journey was then resumed to Canterbury *viâ* Ash, where a halt was made to examine the church. Some descriptive notes on the building by the vicar, the Rev. E. S. Woods, were read, in his unavoidable absence, by the Secretary. The church is a cruciform building with Perpendicular central tower and spire, Decorated chancel with north chapel, and north and south transepts, and an Early Decorated nave with north aisle and porch. What seems to be the lowest stage of an older Transitional tower remains at the west end of the nave. The chief glory of the church is its splendid series of effigies, which were explained in detail by the President, Lord Dillon. They include (1) a knight in mail armour with ailettes, *temp.* Edward I., supposed to be Sir John de Goshall, and under him (2) an early fourteenth century figure of a lady, perhaps his wife Margery. Between the chancel and its chapel is (3) another knightly figure, of Sir John Leverick, *circa* 1350, most beautifully finished in every detail, in curious transition armour, and to the north lie (4) the alabaster figures of John Septvans, *ob.* 1458, in plate armour and standard of mail, and his widow Katherine, *ob.* 1498. The last three figures lie beneath canopied tombs.

In the evening the Architectural Section was opened by the President, Mr. W. H. St. John Hope, M.A., who delivered, in place of the more usual general "address," one dealing exclusively with the architectural history of the cathedral church of Canterbury. By the aid of an ingeniously constructed series of overlapping plans and tracings Mr. Hope showed the successive alterations and enlargements of Lanfranc's church by Priors Ernulf and Conrad under Anselm, and by William of Sens and his English namesake after the fire of 1174, and the reconstruction of the nave and transepts and central tower begun by Prior Chillenden and completed by his successors. Though necessarily traversing much of the ground of the late Professor Willis's able memoir, Mr. Hope was enabled, through his own researches among the documents and account rolls, to bring forward a number of new and interesting facts, and so correct and supplement considerable portions of the Professor's evidence. Mr. H. Sharpe followed with a paper on *Rutupiæ*, with special reference to its haven and the Roman roads that led to the fortress.

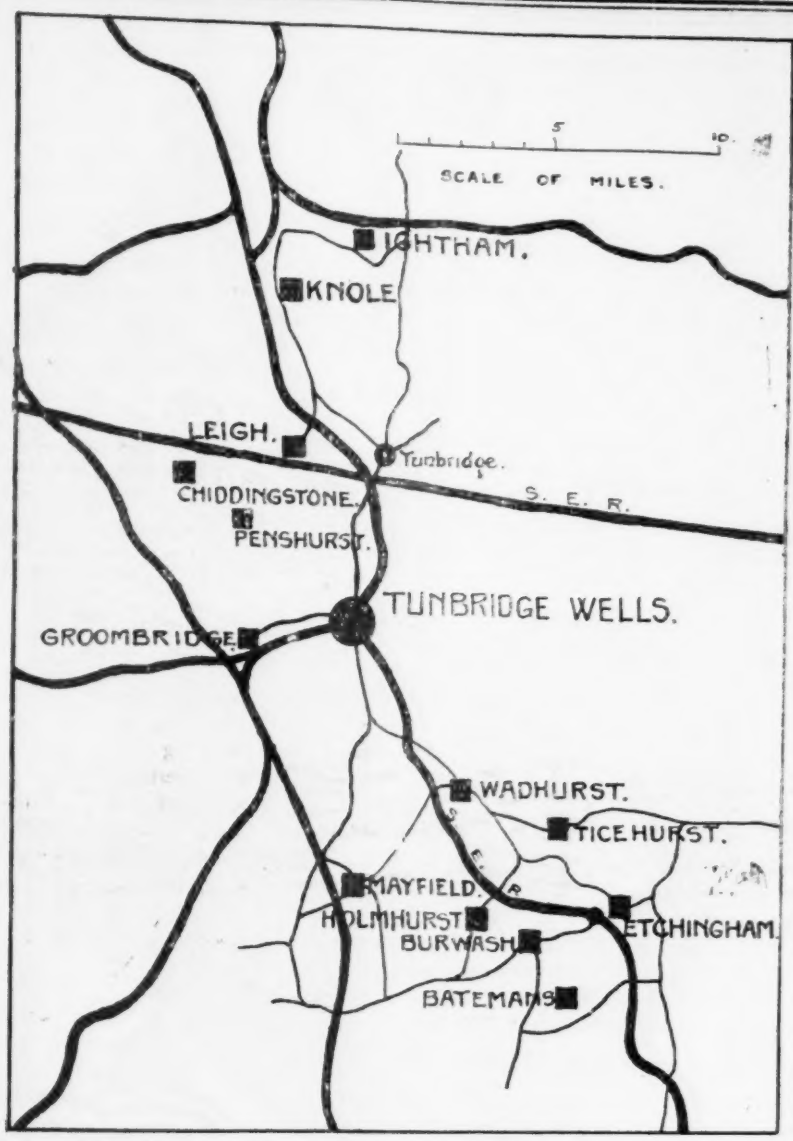
Tuesday was devoted entirely to an examina-

tion of the cathedral church of Canterbury, and the remains of the Benedictine monastery, under the guidance of Mr. W. H. St. John Hope. The party assembled in the south transept after morning service, and after inspecting St. Michael's chapel, with the tombs of Stephen Langton and of the Duchess of Clarence and her two husbands, went by the passage under the steps to the north transept where Mr. Hope indicated the sites of the murder of St. Thomas in 1170, and of the marriage of Edward I. and Margaret of France in 1298. The crypt which was next examined, has been recently cleared of the earth deposited in it at an early date to raise the floor level on account of floods, and has been further opened out by the removal of the partitions that once enclosed the part assigned to the French Protestants. The result is architecturally a great gain, inasmuch as the bases of the columns and responds, which were previously concealed, are now visible, but, as Mr. Hope pointed out, the historical evidence of the building of later features upon the new level has been falsified by the recent substitution round the tombs and screens of another level which belongs to neither period. Mr. Hope also commented upon what he called the "needless and wanton destruction" within the last weeks, by direction of Sir Arthur Blomfield, of the remains of the rubble walls that had been built within the arches round the apse to enclose a vestry for the chapel of Our Lady Undercroft. We do not think Sir Arthur Blomfield is at all a likely person to have ordered the destruction of anything that is of real value, and we should like to hear his statement of the case. Passing to the upper church by way of the south aisle of the choir, Mr. Hope called attention to the tomb hitherto known as Archbishop Hubert Walter's, and quoted evidence in support of its being actually the monument of Prior Henry of Eastry. On arrival at the site of the shrine of St. Thomas, Mr. Hope gave a detailed account of all that is known of the form and arrangements of the monument itself and of the interesting group of tombs around it. He also showed that the round chapel at the extreme end of the church was really the Trinity Chapel, and that in it was kept the famous but doubtful relic known as the *corona Sancti Thomæ*, otherwise called St. Thomas's Head, from its form as a jewelled and mitred bust. A move was then made for the choir, where the original sites of the altars and shrines, of the archbishop's chair, and of the great relic cupboard were indicated.

After lunch the remains of the monastic buildings were inspected, concluding with tea in the "Garden of Eden," by kind invitation of the Bishop of Dover. In the evening Lord Dillon gave an account of the chief features of the English occupation of Calais and the Pale, which was followed by the concluding meeting, when hearty votes of thanks were accorded to all those who had so kindly assisted in making the Canterbury meeting a great success.

Wednesday was devoted to an excursion to Lympne and Lyminge. More than eighty members and their friends left Canterbury by train, and on arrival at Lyminge station drove thence to Lympne, where the church was described by the vicar, the Rev. H. B. Biron. It originally consisted of a central tower, with chancel and nave, all of Norman date, but the nave was rebuilt with a north aisle overlapping the tower, at the beginning of the thirteenth century, and the chancel enlarged in the Early English style. An examination was next made of the "Castle," an interesting fifteenth century manor house close to the church, consisting of a hall with kitchen and solar at one end and a tower and offices at the other. The arrangement of the hall is unfortunately much obscured by later floors and partitions.

After lunch a visit was paid to the site of the Roman fortress of *Portus Lemanis*, now known as Studfall Castle. Mr. Fox, who acted as guide, described what he thought was the original condition of the ground land the way in which the camp was subsequently destroyed and overturned by the action of landslips. He also called attention to the increased thickness of the walls, as compared with those of Reculver and Richborough, and the presence at intervals of large external towers. The return journey was then made to Lyminge, where Mr. Micklethwaite pointed out in the churchyard the foundations of the little Saxon church of 633. He also described the features of the later Saxon church built beside it, and still in use, to which a north aisle and west tower were added in the fifteenth century. The party afterwards returned to Canterbury, and so the meeting of 1896 came to a satisfactory end. Thursday and Friday were included as "extra days" for a visit to Calais under the guidance of Lord Dillon, and afterwards to Boulogne, on the invitation of the Mayor.



Map of District to be Visited by the Architectural Association on their Annual Excursion.

ARCHITECTURAL ASSOCIATION EXCURSION: A PRELIMINARY NOTE.

IN selecting the locality for the Architectural Association Excursion this year it was thought well to go to a brick county, the excursion last year having been in a stone district. The district round Arundel which was first selected had to be abandoned, partly on account of the state of the public health, and Tunbridge Wells was finally settled on as being the best centre for the north-east of Sussex and parts of Kent. It has been found of late years that the domestic work excites more interest than ecclesiastic, and that no detail can be too late and flat to suit the tastes of most of the members. The successful excursions have been those which contained the most sixteenth and seventeenth century work, and for this reason such places as Bayham Abbey and Bodiam Castle have been omitted. The programme this year will be very varied, containing something to meet the tastes of all: picturesque villages with interesting cottages and small houses, with plenty of useful detail of the every-day sort ready for immediate adoption; the Cathedral and churches for those with archæological tastes, while Penshurst and Knole contain pictures, old furniture, old silver and old needlework which are of interest to all. It is proposed to visit some modern work this year which has not been included in former programmes.

On Monday, August 10, the interest will centre chiefly in three small houses, two of the seventeenth century and one of the sixteenth century, in the neighbourhood of Burwash, and the churches of Etchingham and Ticehurst, both good types of Sussex churches, containing a fair amount of interesting detail.

On Tuesday, the principal attraction will be Groombridge Place. This is a seventeenth-century house, built on the edge of a mill-pond, and surrounded by a moat, with terraced gardens beyond. It forms a most picturesque object, and offers great scope for the water-colour men. At Wadhurst Church and village there are plenty of bits for the colourist. Mayfield has, in addition to the church, two interesting houses, the Middle House having an elaborate half-timber front, and the lower house being built of stone—a rather unusual treatment in this part of Sussex. The palace at Mayfield, formerly one of the residences of the Archbishop of Canterbury, is now a convent. It was restored by Pugin.

On Wednesday Penshurst will be the chief object of interest. The village of Chiddingstone has some interesting cottages and a quaint inn. It was proposed to include Hever Castle in this day's programme, but owing to illness permission could not be granted, so it is proposed to visit the house designed by Devey for the late Samuel Morley, at Leigh.

Thursday will be devoted to Canterbury. The Cathedral being so well-known, it is proposed to visit the places of interest in the city in the morning, and the Cathedral in the afternoon.

On Friday Knole will be visited; permission having been obtained to sketch this, with The Moat at Ightham, Friday will be a very full day.

On Saturday it is proposed to visit two houses in the neighbourhood of Tunbridge Wells, designed by Mr. Norman Shaw. Not the least attractive part of the excursion will be the charming country through which the drives will be taken.

H. D. SEARLES-WOOD.

MISSION CHURCH, ASHTED, WARWICKSHIRE.—The foundation stone has just been laid of a new mission hall in Lawley-street, Ashted. Mr. F. B. Osborn is the architect.

SKETCHES OF LONDON STREET ARCHITECTURE, III.—No. 20, JAMES-STREET, BUCKINGHAM GATE.
Mr. Reginald Blanfield, Architect.

SKETCHES OF LONDON STREET ARCHITECTURE.—III.

HOUSE, No. 20, JAMES-STREET, BUCKINGHAM GATE.

THIS picturesque front was designed about five years ago by Mr. R. T. Blomfield. The materials are Portland stone and specially-made small red bricks, made by Mr. Hunt, of Huddleston.

The pointing is a little unusual, a flat slightly-recessed strip between the bricks, lined in the centre with a hollow of semicircular section; it was revived by Mr. Blomfield from a form used about 150 years ago.

The frieze, carved in brick, was modelled by Mr. H. Pegram.

A PRESENTATION TROWEL.

THE trowel here illustrated was presented to the Duchess of Connaught at the laying of the foundation-stone of a new hospital at Aldershot last week, by the architect, Mr. Thomas Davison. The spatula is of grey steel, part beaten, and ornamented with a treatment of the Royal supporters and motto, and enclosing a plaque of enamel with inscription. The handle is of forged copper with champlevé enamel, the fleur-de-lys at the extremity being in beaten silver and oxydised. It was designed and wrought in metal and enamel by Nelson and Edith Dawson.

Presentation Trowel: Designed and Executed by Nelson and Edith Dawson.

MAGAZINES AND REVIEWS.*

THE *Art Journal* introduces us to two rather new subjects, "Sport in Art," embodying some interesting reflections as to the truthfulness or otherwise of pictures of sporting subjects, and "Art Themes from Hinduism," by Mr. Ernest M. Bowden, partly illustrated from native Indian designs; but the article suggests a new field for ideal subjects for the European painter. An article on "The Undue Claims of the Photographer" is well-timed, and will meet with a good deal of sympathy from those who have been victimised by the traps sprung upon them by unexpected and unreasonable claims for copyright charges. The *Art Journal* suggests that photographers should be compelled to follow the same practice as that which has been imposed on the publishers of songs, and should stamp on the back of any photograph of which they forbid reproduction a notice to that effect. On one occasion we applied to an eminent architect for an illustration of one of his buildings, and received from him a photograph which had been taken by his own permission from the building, with the stipulation that he should have a certain number of copies, one of which he sent us. The publication of this was followed by a lawyer's letter on behalf of the photographer, threatening proceedings for having printed from it without his permission. This same virtuous photograper had shortly before taken a photograph for this journal, and immediately sold a copy of it to another paper!

The Artist contains No. IV. of Mr. Maccoll's series of papers on "Impressionism, or the logic of modern-painting," which is a very good and as far as it goes a logical defence of the writer's point of view; but unfortunately a good many of the painters who are called "impressionists" go a good deal further than Mr. Maccoll's reasoning would carry them. That "it is impossible to give the idea of a forest by a certain number of brightly-defined trees," and that "the effect of the ocean cannot be rendered by a countable number of waves," is no doubt perfectly true—perhaps one might say it is a truism; at all events it is surely a truth that was recognised by the best painters long before one ever heard of impressionism. But we must have indications of definite form; the kind of impressionism one objects to is that which evades form altogether. In the same periodical we are glad to see a hearty recognition of Mr. Paul's book of illustrations of "Vanishing London."

Blackwood contains a charming article of archæological notes and reflections, by Sir Herbert Maxwell, under the title "Through Touraine on Wheels" (those of a bicycle), through the land of French châteaux, about which Sir Herbert writes with the sympathy of a lover of old buildings and the pen of a picturesque writer. That he is troubled at the "exasperating state of excellent repair" to which Chambord and other monuments have been brought by the hand of the French restorer is not to be wondered at. The French have quite beaten our record as restorers.

Le Monde Moderne contains a well-written critical article on Corot by M. Arsène Alexandre, which, among other things, lets the reader into the fact that Corot not only occasionally painted, as we know, figure subjects, but also architectural subjects. A portrait of the painter is included among the illustrations; a bluff, determined-looking head, curiously at variance with the style and associations of his works. The same number contains an article on the subject of "Illustration par la Photographie," that is to say, book illustrations from scenes and figures grouped for the purpose of representing the incident of the story, a device which seems to have been employed to some extent in France. The author, M. Paul Aymery, seems to look very doubtfully on the artistic success of the method, and we are much of his mind. "Rouen en un jour" is the title of a profusely illustrated descriptive article on the city, by M. Jules Adeline.

In the *Atlantic Monthly* a clever paper by Mr. Lafcadio Hearns, "About faces in Japanese Art," combats the common opinion (which we confess to sharing) as to the want of individual expression and reality in the Japanese representation of the human face, by the theory that the Japanese artists only intend to give the type, as they give in a few brush-strokes the type or general outline and structure of a flower or a bird, without going into details. The weak point in the argument is that the flower and bud forms are beautiful, and the face forms are not. The answer to this is that the Japanese think the European type of face ugly and expressionless, and the writer mentions one or two amusing criticisms of Japanese children on European representations of the faces of men and women—"Why do foreign artists like to draw horrible things? . . . There cannot really be such faces in the world," &c. The argument is ingenious, and there may be something in it, but we hardly think it will alter the fact that of all things which the Japanese draw, they draw the human face and figure worst—or least well.

In the *Century* is an interesting article on "Burnt Wood in Decoration," by Mr. W. Fosdick, who, from the specimens of his work which are illustrated, seems to be himself a master in this curious and, within its limits, very beautiful and effective form of artistic production. Mr. Fosdick rightly insists on the importance of restricting it to purely decorative treatment, and avoiding all effort at realism. In the course of the article there is an incidental reference to the difficulty of getting modern American wood carvers to let their work alone sufficiently. "It is necessary," said an American architect, "to stand over these men and take their work from them while they still consider it unfinished." We were not so long ago at the same stage in England; what may be called the sandpaper stage. In the same number is an article on the Vatican, considered principally from a picturesque point of view, by Mr. F. Marion Crawford; and under the heading of "Open Letters" are some remarks on American Church Architecture which may interest our readers. The writer makes exactly the same complaint which has often been made against modern English church architecture, as to the loss of impressive effect from the comparatively small size of the churches, and traces it to the predominant tendency to regard a church mainly as a place for preaching in, and which must not be too large for the preacher to be easily heard. This is really the reason for the

* The object of these notes is to point out anything in the contents of the current magazines which is of special interest to our readers, with occasional brief criticisms on the views expressed in such articles. When a magazine which has been sent to us is not noticed, it is because that number contains nothing that it is within our province to comment upon.

small size of modern churches in England, only that it is not a reason operating directly at present, it is an inheritance from a time when the church was regarded mainly as a preaching place; the small size of ordinary churches has been fixed by a kind of tradition, not in keeping with our present feelings, and which ought to be broken through.

Scribner has a pleasant article, pleasantly illustrated, on "Old-Time Flower Gardens," from which we gather that what is sometimes called "the old English cottage-garden" has bloomed again in New England and others of the States. Under the heading "The Field of Art" are some thoughtful remarks as to the meaning of "Style" in art, which are worth attention. The suggestion is that style and individuality are different qualities: "Raphael possessed style because his work was the assimilation and combination of all the art knowledge of his time." In architecture, as we know, a building may have style and be deficient in character, and conversely it may have character and be without style.

In his article on "Recent Science" in the *Nineteenth Century*, Prince Kropotkin collects and compares the results of the most recent observations of the moon by astronomers, which are supposed to be tending back to the conclusion that there is an atmosphere on the moon, though of great tenuity, and that the existence of moisture and of some forms of life in the planet is not impossible. Of course the recent construction of telescopes of higher power than has been previously attained has something to do with this alteration in the attitude of the scientific mind towards the moon.

In *Longman's Magazine* is an excellently written popular (though not too popular) account of the phenomena of "atmospheric pressure," and the history of the gradual manner in which the perception of the fact that air had weight dawned upon mankind. A good many persons who think the barometer a very simple instrument with no mystery about it might read this article probably not without profit.

The *Pall Mall Magazine* devotes an article to Hardwick Hall, with illustrations of a good many of the rooms, decorative details, tapestries, &c., from photographs by the author, the Rev. A. H. Malan.

The *Windsor Magazine* contains an article on "Building an Atlantic Liner," a purely popular one, but which conveys a good general idea of the outline of the process of building up a great steel ship.

In the *Gentleman's Magazine* Mr. F. Owen Whittaker takes occasion, from the study of an annotated "Eighteenth-Century Atlas of England and Wales," to draw some comparative pictures of the state of England in the last and the present century, in regard to various particulars of population, commerce, agriculture, manufactures, means of intercommunication, &c., which is of considerable interest.

The August number of *The Quarry* contains articles on several subjects of interest; especially one on "The Building and Ornamental Stones of Sweden." A short article on the use of electricity in working stone quarries strongly recommends the system, for economy and convenience. It was adopted about two years ago by the Hainaut Quarries Co., at Soignies in Belgium.

COMPETITIONS.

Public Hall, Halifax.—Three premiums were offered for the best designs for the proposed new public hall and police offices, to be erected on the site of the old infirmary at Halifax, the cost being limited to 25,000*l*. Fifteen sets of plans were sent in. The first premium (100*l*.) was awarded to Messrs. Cheers & Smith, of Blackburn and Twickenham, for the plans marked "Justice." The second premium (60*l*.) was given to the plans marked "Persimmon," of Messrs. H. & D. Barclay, St. Vincent-street, Glasgow. The third premium (40*l*.) was given to the plans marked "Haliz-1662-fax," of Messrs. Farrow & Nisbet, 7, New-court, Lincoln's-inn, W.C.

Church, Birmingham.—In a competition for a church to be erected opposite to the Victoria Park, Birmingham, the plan of Mr. Eachus, architect, of Lichfield-street, Wolverhampton, has been selected, and he, in conjunction with Mr. Grew, of Birmingham, who also competed, will carry out the work under the style of Messrs. Eachus & Grew. Mr. T. Worthington, of Manchester, was the assessor in the competition.

A LARGE WIND ENGINE.

The accompanying illustration represents a 40-ft. diameter Halladay wind engine that was fixed last year for the Ecclesiastical Commissioners at Ludham, near Wroxham, Norfolk, by Messrs. Alfred Williams & Co., hydraulic engineers, London. The brick tower of an old-fashioned four-sweep windmill, 30 ft. high, was utilised, and on it a steel lattice-work tower 23 ft. high, rivetted to two steel girders, was fixed, the girders being held down by steel tie-rods attached to bolts and plates running through the base of the brick tower. The centre of the wind wheel stands 50 ft. from the ground. This wind engine develops 18 h.p. in an eighteen-mile wind, and it is used for driving a centrifugal pump, fixed in a collecting well, into which the dykes drain, and the flood water is driven through a pair of sluice gates into the river Thurne.

More than a thousand acres of the marshes used for grazing land are drained in this manner. The Halladay wind engine has a perfect system of governors, which prevent the wheel from racing, and cause it to work so evenly that it is being successfully used for driving all classes of farm and wood-working machinery, and mortar-mills, also deep-well pumps, fixed at the bottom of shafts, up to 320 ft. in depth. It is made in all sizes, from ½-h.p. to 40-h.p.

These wind engines are being used for pumping village supplies at various places—Uckfield, Sussex; Lechlade, Gloucestershire; Seckington, Staffordshire; Clive, Shropshire; Hindhead, Surrey; Rudyard, Staffordshire; Waverton, Cheshire; and Bangor, Carnarvon.

Wind Pumping Engine at Ludham.

ARCHÆOLOGICAL SOCIETIES.

Newcastle Society of Antiquaries.—The monthly meeting of the Newcastle Society of Antiquaries was held at the Old Castle on the 29th ult., Mr. Horatio A. Adamson (Tynemouth), in the chair. On a report by a Committee, it was agreed that an exhibition of church and secular plate be held at the Black Gate Museum next spring, to be opened about the same time as the Infirmary Exhibition. Mr. Whitworth's model of the Old Castle was stated to have been purchased, and he was appointed a life member. Mr. Blair's Roman collection had also been purchased and presented to the Society, it being agreed to classify it as "The Blair Collection." The Rev. H. E. Savage, Hon. Canon of Durham and Vicar of St. Hilda's, South Shields, read a paper on "Abbess Hilda's First Religious House." He reviewed at length the evidence for the suggestions that the site was (1) on the north bank of the Wear; (2) on Souter Point; (3) St. Hilda's, South Shields, and declared in favour of the latter being the site of the first religious house under Aidan.—Mr. F. W. Dendy read "Notes on some common field customs at Cowpen in the time of Elizabeth."—Dr. Hodgkin, on behalf of the Northumberland Excavation Committee, brought before the meeting the lack of funds for the prosecution of the excavations of the Roman camps. The committee, he said, was composed entirely of members of that society, and for the last two years they had been excavating the camp of Æsica, behind Haltwistle. They had closed 1895, however, with a deficit of £73. 6s. 10d. The principal outlay had been in fencing their excavations; but their position financially was really due to the miserably inadequate sum subscribed, £85 odd. Now, they had found some rare archæological relics, and exposed three gates, which proved as many distinct occupations of the place by the Romans. Further search might reveal some sculptured stones, and with an annual income of £200 much might be done. Without this the work must languish and cease, and he proposed that a special appeal should be made, not confined to Northumberland, as the work was of a much wider interest. This was agreed to, and the proceedings ended.

Durham Archæological Society.—The members of this Society, accompanied by a number of lady friends, paid a visit to the Scottish Borderland, recently. At Jedburgh they dined in the Spread Eagle Hotel. The Rev. James King, B.D., joined the company in the Abbey subsequently. Canon Greenwell remarked that the three Saxon stones deposited in the Marquis' aisle are excellent specimens of the ornamentation of the Saxons, and that they probably date from the ninth century. He said that valuable relics of antiquity such as these should be kept under cover, and if possible, in a dry atmosphere, inasmuch as disintegration of the tracery had already begun.—Mr. Hodges, architect, standing by a clustered column of the nave, read to the assembled members a paper on "The History of the Abbey." He pointed out that the Norman work now existing is confined to two bays in the choir, two northern piers of the tower, and fragments of the transept. He thought it possible that a Norman nave may have existed, but if so it must have been much smaller than the present spacious nave. Its date he assigned from 1175–1190. He further remarked that many mouldings in the transitional nave are closely akin to those in Hexham and Glastonbury, and thought it probable that these three edifices belonged to the same period. He pointed out that the old Norman piers run straight up to the capitals of the triforium arches, and resemble in this respect the piers of Christchurch, Oxford, and those of Ramsey Abbey, Hampshire.

Midland Institute: Archæological Section Excursion.—The series of excursions to places of antiquarian interest, arranged during the summer by the Archæological Section of the Midland Institute, was brought to a close on the 22nd ult., by a day's outing in the lower district of the River Avon. Leaving New-street Station at 8.45 a.m., the party arrived at Tewkesbury shortly before half-past ten, and at once pro-

ceeded to the Abbey, which was carefully examined, under the guidance of Mr. Jethro A. Cossins. A stroll was then taken through the picturesque old town, and after a midday luncheon at the Swan Hotel, the party embarked at the Ancient Norman Bridge in a couple of steam launches, and steamed for an hour up the beautiful River Avon to Strensham, where they were met by the curate-in-charge, the Rev. A. Chichester Burnard. The church had been described and believed to be wholly unrestored, but the visitors were much shocked and disappointed at finding that the extremely valuable full-length portraits of Apostles, saints, and bishops, which occupied the panels of the rood-loft, had recently been restored, and it need hardly be said their whole value and interest lost. The journey was then retraced down the Avon as far as Bredon, where the party were received by Mr. James Whitfield, at Avon Bank. After tea a visit was paid to the church. The party returned to Birmingham from Bredon Station, arriving home at ten o'clock.—*Birmingham Gazette.*

SUSSEX ARCHÆOLOGICAL SOCIETY. — The jubilee of this Society was celebrated recently at Brighton and Lewes. On the first day the members dined at the Pavilion, Brighton, and on the following day they visited Lewes. The Priory and the parish churches of Lewes were visited, as well as the Castle, and in the evening a conversazione was held. On the last day the party travelled to Arundel Castle, where the Duke of Norfolk entertained the party to luncheon in the new Baron's Hall. Parham House was also visited.

THE DEVONSHIRE ASSOCIATION.—This Association, which exists for the advancement of science, literature, and art in that county, and which publishes yearly a volume of Transactions, held last week (July 28 to 31) its annual meetings at Ashburton under the presidency of the Rev. S. Baring-Gould, who delivered an able address on the "Prehistoric Archæology of Devon." More than thirty papers were read at subsequent sittings. The list of past Presidents includes the names of Charles Kingsley, Lord Chief Justice Coleridge, Mr. Spence-Bate, Lord Clinton, Mr. Pengelly, F.R.S., Mr. Brooking-Rowe, F.S.A., and Lord Halsbury, who preceded Mr. Baring-Gould. The President-Elect is Mr. James Hine, F.R.I.B.A., and the 1897 meetings will be at Kingsbridge.

BRISTOL AND GLOUCESTERSHIRE ARCHÆOLOGICAL SOCIETY.—The Bristol and Gloucestershire Archæological Society held their twenty-first summer meeting at Monmouth recently, as reported in our last issue, page 101. The Rev. S. E. Bartlett proposed that the new code of laws, as drawn up by the committee appointed at the last general meeting of the Society, and approved by the Council, be adopted subject to their confirmation at another general meeting. The old rules provided that the Council should represent various Parliamentary divisions of the county of Gloucester as then existing, which divisions had been very much altered by comparatively recent legislation. Instead, therefore, of having members of the Council representing East and West Gloucestershire, and the smaller boroughs of Cirencester and Tewkesbury, it was thought desirable that the representation of the Council should be on the lines of the present Parliamentary divisions. Mr. Le Blanc seconded the proposition, which was carried.

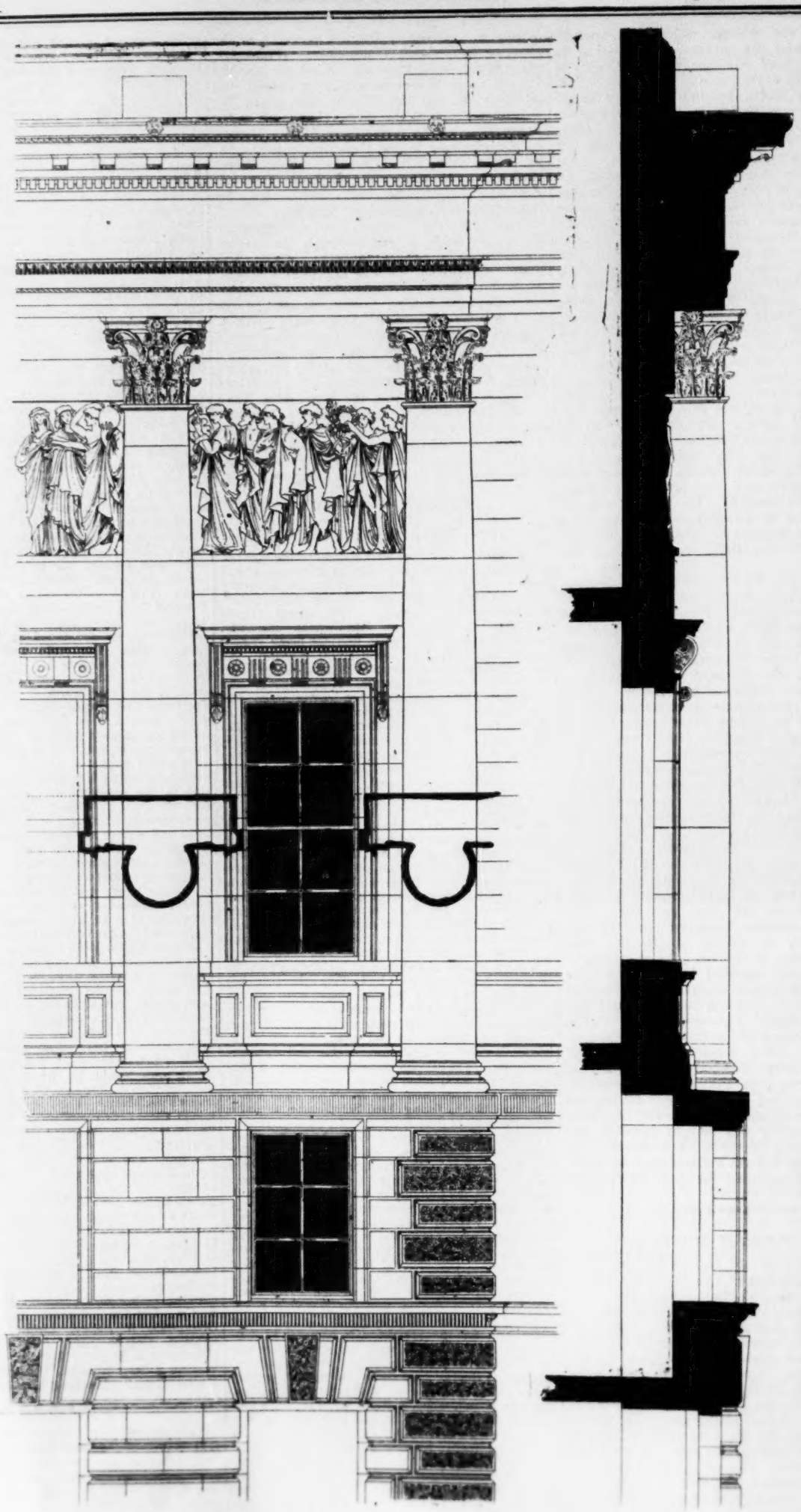
ENGINEERING SOCIETIES.

THE INSTITUTION OF JUNIOR ENGINEERS.—The Summer Meeting of this Institution will be held in Scotland, and the members will leave London on the 14th inst. On *Saturday and Sunday*, places of popular interest in Edinburgh will be visited, including the Castle, Holyrood Palace, Arthur's Seat, &c. The gas works and electric lighting stations may also be seen. *Monday.*—Visit the Forth Bridge, through facilities afforded by the Forth Bridge Railway Co. In the evening proceed to Glasgow. *Tuesday.*—In the morning the following works in Glasgow will be open for visiting, the selection being left with the members, who are requested to inform the secretary which works they intend to visit: Hydraulic Pumping Station, New Howe Machine Co.'s Cycle Works; Mr. J. White's Optical, Nautical, Electrical, Telegraphic, and Surveying Instruments Factory; Sewage Purification Works; Messrs. Neilson & Co.'s Locomotive Works, Springburn. In the afternoon the members will be received in the Municipal Buildings by the honourable the Lord Provost and the Corporation, afterwards being entertained to an excursion to visit one of the new reservoirs of the Glasgow Corporation Waterworks. *Wednesday.*—Excursion to Dumbarton. Reception by the Provost and Town Council, by whom the members are also invited to a drive round the historic portions of the town. Luncheon at the Leven Shipyard, by invitation of Messrs. Denny. In the afternoon inspect their various works, experimental tank, &c. *Thursday.*—Steamer excursion on the Clyde, or on Loch Lomond. *Friday.*—The following works will be open for visiting, the selection being left with the members, who are requested to inform the secretary which works they intend to visit:—Singer Manufacturing Company's Sewing Machine Works, Kilbowie; Caledonian Railway Locomotive Works, St. Rollox; Fairfield Shipbuilding and Engineering Company's Works, Govan; Messrs. Mavor & Coulson's Electrical Engineering Works, Glasgow; Glasgow Iron and Steel Company's Works, Wishaw. In the evening the Institution's summer dinner will be held at the Alexandra Hotel, Glasgow, the President, Mr. Archibald Denny, in the chair, and the Right Hon. Lord Kelvin the guest of the evening. *Saturday, August 22.*—Visit in the morning Dawsholm Gas Works or the Electric Lighting Station, Glasgow. In the afternoon, train with reserved accommodation, returns to St. Pancras, arriving 10.45 p.m.

NEW INFIRMARY, HALIFAX.

INFIRMARY buildings were opened on the 25th ult. at Halifax. The cost of contracts executed, and of work yet to be done (exclusive of site and boundary wall and lodge, which are left for the present), is estimated at 72,625*l.* The design of the buildings is of a Free Renaissance character, the parts towards the main frontage being treated as the most marked architectural features. All the buildings are constructed of local stone from the quarries at Southowram, Hipperholme, and Ringby. The outer walls are cavity walls and have damp courses throughout, and the whole of the buildings, except two floors of the front block, are fireproof. The main frontage is to Free School-lane, having the front administration block in the centre, which is three stories in height except at the wings, which are four-storied. This block is flanked by ward pavilions on both sides, detached from each other. The chief feature in the general arrangement of the various buildings is that the wards are only one story high, and that they are, together with all administrative offices, &c., upon one floor. The ward floors do not rest on an enclosed basement, but are raised from the ground by means of arches. A central line drawn north and south from Free School-lane to the back of the site would pass through all the administrative parts of the hospital. Such a line would intersect the front entrance and the front administration block, and would then follow the course of a main corridor leading past the surgical block to a central hall. From this branches right and left a long corridor leading to all the wards. Continuing from south to north, the line would pass through the kitchen block and along a covered way leading to that containing the wash-house, laundry, boiler-house, engine and dynamo-house, &c. The various departments, though connected with each other by corridors, are otherwise distinct, and have circulation of air all round them. The front block, facing Free School-lane, contains upon the ground floor waiting and secretary's rooms, matron's office and sitting-room, house surgeon's rooms, and board-room, with separate lavatories, &c., in the wings. The complete scheme provides for a nurses' home on the east side, facing Heath-road, but, as the building of this home is deferred, the nurses are for the present accommodated in the upper floors of the front administration block. The nurses' approach to the wards is by a first-floor corridor, from which a staircase descends to the central hall. The surgical block is a one-storied building, at the entrance to which is a glass-covered area to shelter carriages, &c. This block contains porters' rooms, accident receiving room, examination rooms, dispensary, &c., and a large hall, which for the present will be used for out-patients. It is proposed, when the whole scheme of the Hospital is completed, that an out-patients' department shall be built on the north-west portion of the grounds, at the point nearest to the town. The central hall, which is at the junction of the two main corridors, is two stories in height with a gallery on the first floor. Round it are grouped a number of rooms for the general service of the Hospital, comprising assistant matron's office, linen store, sewing-room, and library, also the dining-room for the matron and house surgeons, and dining halls for the nurses and servants respectively. Adjoining the north side of the Central Hall is a service room communicating with a kitchen, adjoining which are a scullery, a pantry, and store rooms. Close to the central hall are stairs and a large lift communicating with the first floor (on which are placed the servants' bedrooms, boxrooms, lavatories, &c.), and with the basement which, owing to the levels, forms a ground story on the lower side. Here are receiving rooms for stores, with goods entrance. The coals are unloaded direct into the coal-store from the outside, and taken up to the centre of the building for distribution by a lift provided for this special purpose. The washhouse and laundry are situated at the rear of the site, and are separated from the kitchen block by a large grass-covered drying-ground which will serve as a supplement to the drying arrangements in the laundry. The drying chamber itself is placed between the washhouse and the laundry proper. It is heated by coils of steam-pipes laid under gratings placed in the floors, air being admitted from the outside, and the supply being easily regulated by means of valves. The moist air is extracted through a flue connecting with the long chimney, this flue being also regulated by means of easily-worked valves. In this block of buildings are placed two steel steam boilers, 30 ft. by 8 ft., made by Messrs. Yates & Thom, of Blackburn; steam engine, pumps, feed water heater, dynamos, &c. In a detached building is placed a disinfector made by Manlove, Alliott, & Co., Limited, of Nottingham. The present ward pavilions are six in number, viz., three for men, two for women, and one for children, and will contain 150 beds. Each pavilion is detached and raised from the surface of the ground, so that it has a clear air space all round, and has a cross ventilating passage from side to side, at each end of the ward. On one side of the entrance-passage connecting each of the ward pavilions with the main corridor is a small ward for special cases, a patients' clothes-room, and housemaid's closet. On the other side is a nurses' duty room, with pantry, and store rooms for ward linen, splints, &c. The large wards are all alike, and (except the children's ward), contain twenty beds each. They are 88 ft. long, 28 ft. wide, and 17 ft. high to the centre of the coved ceiling. Four of them have oak floors, the floors of the other two being laid with terrazzo mosaic. All these floors are based on concrete, carried by iron girders. The walls are of Keen's cement painted with four coats of Gay's enamel paint. All recesses are avoided, and all angles rounded. Each of the large wards is heated by two double fireplaces and, when needed, by steam heaters, which serve also as inlets for fresh air. At the further end of each ward are lavatories, bath-room, nurses' scullery, &c., and in each of the four wards which face south is a cheerful day-room. The operating theatre is entered from the main corridor, and in the approach to it are ante-rooms for patients about to undergo operations, and for their reception afterwards. The theatre has a good north light and a floor of white terrazzo. The mortuary is a simple building, the interior being lined with cream-coloured glazed bricks. Attached are a post-mortem room and a pathological room. The whole of the buildings and grounds are lighted by electricity, there being an installation on the premises consisting of a 52 h.p. combined Chandler steam engine and dynamo and sixty Epstein storage cells. The installation is to some extent duplicated by a 10 horse-power gas engine and a small dynamo, for use in case of accident to the steam engine. The whole of the electrical arrangements have been carried out according to the plans and specifications of Messrs. Shepherd & Watney, electrical engineers, of Leeds, and under their supervision. The buildings have been erected according to the designs, selected in competition (Mr. Alfred Waterhouse acting as the assessor), of Messrs. Worthington & Elgood, of Manchester, and their successors, Messrs. Thos. Worthington & Son, and under their superintendence. The contractors for the works have been as follows:—Masonry and brickwork, Mr. Wm. Sutcliffe, Sowerby Bridge; carpentry and joinery, Messrs. S. Wadsworth & Son, Halifax; plumbing, glazing, and sanitary fittings, Messrs. John Naylor & Son, Halifax; plastering and slating, Messrs. Rushworth & Firth, Halifax; ironwork, Mr. John Berry, Halifax; concreting, Messrs. George Greenwood & Sons, Halifax; painting, Messrs. Jonas Binns & Sons, Halifax; heating, lifts, &c., Messrs. Newton, Chambers, & Co., Limited, Sheffield; cooking appliances, Messrs. Leech Brothers, & Co., Manchester; mosaic floors, Messrs. De Grelle, Houdret, & Co., London; dynamo and engine, Messrs. Greenwood & Batley, Limited, Leeds; electric lighting, electric bells, and telephone, Messrs. Ullathorne & Hartley, Halifax, and Messrs. S. J. Waring & Son, Limited, Manchester; gas engine, Messrs. Crossley Brothers, Limited, Manchester.

EXHIBITION AT THE BIRMINGHAM ART GALLERY.—In the Long Room of the Birmingham Art Gallery are now arranged nearly 300 permanent photographs, for the most part representing places and objects of Old Warwickshire, which have been prepared for the photographic survey of the county, and lent by the Birmingham Photograph Society. The collection comprises 345 views, but, on account of lack of space, only 281 have at present been arranged. Those not on exhibition include a set of pictures of the windmills of the county, by Mr. E. C. Middleton. The survey embraces the districts from Sutton Coldfield to Tamworth, and from thence to Warwick.



Detail of One Bay of South Front *Section*

Liverpool Museum Extension Competition. Detail Elevation of Second Premiated Design. By Mr. J. M. Brydon, F.R.I.B.A.

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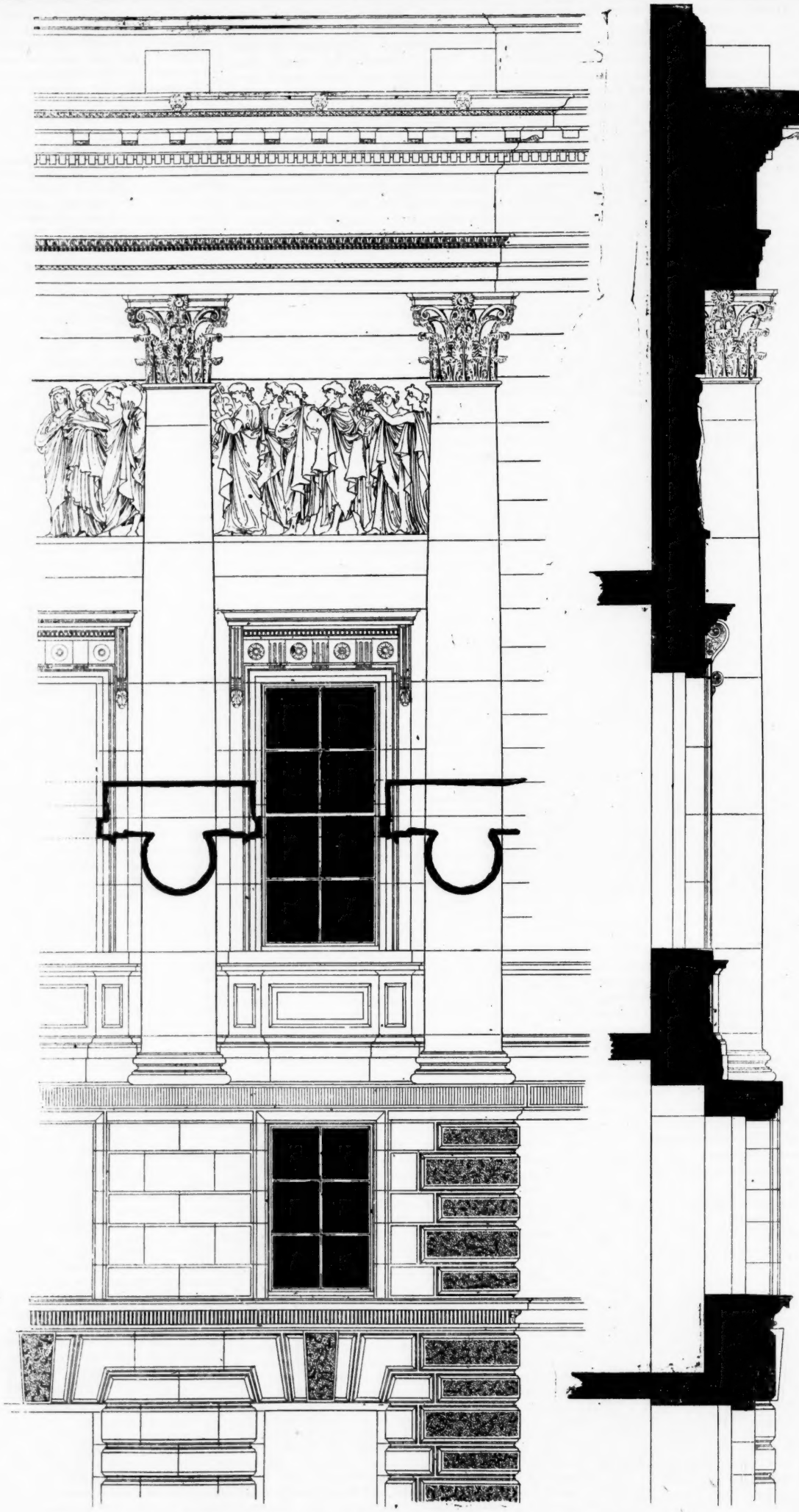

Liverpool Museum Extension Competition. Detail Elevation of Second Premiated Design. By Mr. J. M. Brydon, F.R.I.B.A.

Illustrations.

LIVERPOOL MUSEUM EXTENSION AND TECHNICAL SCHOOLS.

We give this week the perspective view and plans of the selected design in this competition, by Mr. E. W. Mountford, and also of the second premiated design, by Mr. J. M. Brydon. We devoted a long article to the leading designs in our issue of July 25, and have no more to say about them on our own part, but we have invited each of the architects to make his own statement in regard to his views and intentions with the design.

Mr. Mountford writes: "I do not think there is much that I can say about my design for the Liverpool Museum extension. The plan seems to speak for itself. Simplicity of arrangement was what I aimed at, and the avoidance of small or narrow areas for lighting purposes. The various class-rooms and workshops were placed in the best positions for their respective uses, and were grouped in the manner that experience has shown to be desirable. I endeavoured also to keep the great hall as distinct from the rest of the building as possible.

A local competitor has complained that my stories are only 12 ft. high in the clear. In my opinion this is sufficient, and the late Mr. Ewan Christian, acting for the Charity Commissioners, was of the same opinion.

Another foot in height could, however, be easily obtained, and the rooms would then be as high as those of the Battersea Polytechnic, which are certainly high enough for any purpose whatever."

Mr. Brydon writes in regard to his design: "As the illustrations pretty well explain themselves, perhaps it may be of more interest to give in a few words the general principles which guided me in the preparation of such a design. The site is a striking and peculiar one with a great fall in the ground towards the west, and the high plateau in front of the present museum stopping abruptly in the centre of the length. The adjoining public buildings are of strongly marked Classical character, the Council therefore wisely pointed out the great importance of a personal acquaintance both with the site and its surroundings: their influence cannot be ignored. After a careful study of the matter on the spot I ventured to think that, architecturally, the keynote of the whole problem lies in the fact that it is an extension of an existing building that is required, and not a new or separate structure, and there is no getting over this condition. It appeared to me also that this is not a case for disconnected or picturesque treatment either in planning or elevation, but rather it is essentially one for broad, comprehensive, and dignified handling, for harmony of line and stateliness of arrangement.

The present museum may not be all that is desirable—it could hardly be otherwise considering how the fine original design was altered and pulled about in execution—but its general proportions are satisfactory, and if its detail is not so good as it might be, this can be rectified in the extension. The conclusion I came to, therefore, is that the main lines, and especially the Order, should run through the whole work, that the new addition should be in strict harmony with the old, and that every effort should be made to secure the result appearing as one building, and not two.

The striking group of public buildings in the immediate neighbourhood, dominated as they are by the Græco-Roman St. George's Hall, seems to demand a monumental treatment, so I have endeavoured to assimilate the new with the old, to weld both into one large and important structure, some 400 ft. long by 165 ft. broad, and to design the extension accordingly. In this way only does it seem to me the desire of the Corporation to erect a building 'characterised by dignity of proportion and simplicity of design,' with the necessary refinement of Classic detail, can best be carried out. I have ventured also on a liberal introduction of high class sculpture, believing that no great building of this character is ever truly complete without such a combination of sculpture and architecture. The gifted architect of St. George's Hall felt this and provided for it, but it is only now, after many years, that it is slowly being carried out. Liverpool has once again a great opportunity.

In the planning, I considered the new Museum Galleries of the first importance; they are the *raison d'être* of the extension, and should be stately and architectural in their arrangement, and thoroughly well lighted. Placing the School of Science under them is not an ideal location for such an institution, but the best had to be made of the position. Undoubtedly it would be much better in a separate building, and an art school should obviously be associated with it, including accommodation for the new School of Architecture and the Applied Arts.

May I make a suggestion to the Liverpool Corporation? It occurred to me more than once during the study of this design. It is this:—Find another and much more suitable site for the new Schools of Science and Art combined, devote the space under the new Museum Galleries to the lending department of the Public Library, convert the east library on the ground-floor of the existing building into another news-room (the present one is far too small, much over-crowded, and another is badly wanted), and, lastly, add the library rooms on the first-floor to the Museum as additional galleries. It will all be wanted in the future, and there is space to make both the Library and the Museum the most commodious in the country.

If the School of Science is built under the Museum, it will be at the risk of its thorough efficiency, it will be isolated from the Art School, and any enlargement that may be necessary in the future will be almost impossible."

THE BROOK HOSPITAL, SHOOTER'S HILL.

On the invitation of the Metropolitan Asylums Board a large party of ladies and gentlemen visited, on the 31st ult., the new fever hospital which has been erected at Shooter's Hill. The hospital is the first of three which are being provided by the Board to meet the increasing needs of London in respect of fever accommodation, and no expense appears to have been spared to make the building, which has been admirably planned, a complete embodiment of the latest ideas in regard to hospital construction.

The hospital will provide accommodation for 488 patients, viz:—scarlet fever, 352; enteric and diphtheria, 112; and isolation wards, 24. Space is left adjoining the isolation wards for three additional isolation wards of six beds each, which would bring the accommodation of the hospital up to 506 beds. The staff of the hospital will comprise a medical superintendent, five assistant medical officers, matron, steward, housekeeper, engineer, 196 nurses, 92 female servants, 24 male servants, making, with a few others, a total of 325.

The general plan of the hospital has been arranged upon the principle of keeping the administrative buildings as separate and distinct as possible from the wards and their appurtenances. In furtherance of this principle there are two entrances to the hospital, both overlooked from and controlled by the same porter's lodge. In general arrangement the administrative buildings are placed in front, or to the north of the site, facing Shooter's Hill-road, the rear or southern portion being occupied by the ward pavilions, the axes of which are as nearly as possible north and south.

Each of the two receiving wards comprise receiving-room and bath-room, together with waiting-room and lavatory for patients' friends. The receiving-rooms are connected with the main corridor or covered way of the hospital. There are twelve main ward pavilions—eight for scarlet fever, and four for enteric fever and diphtheria—each being two stories in height, with an open space varying from 4 ft. to 8 ft. in height under the ground floor. The general plans of the pavilions are all similar, except that while the main wards for scarlet fever each contain twenty beds, and are 120 ft. long, those for enteric fever and diphtheria each contain twelve beds, and are 90 ft. long. One general description of a pavilion will apply to all. The following are the spaces allowed per bed in the several wards, all wards being 13 ft. high, *i.e.*, linear wall space:—scarlet fever, 12 ft.; enteric and diphtheria, 15 ft. Floor space: scarlet fever, 156 ft.; enteric and diphtheria, 195 ft. Cubic space: scarlet fever, 2,028 ft.; enteric and diphtheria, 2,535 ft. On each floor of each ward pavilion for scarlet fever are contained one main ward, one separation ward, bath-room, duty-room, linen store, and larder, together with the water-closet turrets. There is also on the ground floor a water-closet for nurses. The main ward, which contains twenty beds, is 120 ft. long, 26 ft. wide, and 13 ft. high. The floors are of wax-polished teak, and the walls are plastered with Keen's cement. All internal angles are rounded, and the internal faces of the window frames are flush with the face of wall. The ward windows consist of double-hung sashes to three-fourths the height, the remaining portion being a hopper-hung fanlight, hung to open inwards, with hopper cheeks going up to ceiling. These windows extend from 2 ft. 6 in. above the floor up to close under the ceiling. The lower sashes are glazed with plate glass, and the upper ones are double glazed with sheet glass. The distal end of the ward, having a southern aspect, is kept free from all impediments to light and air in the nature of bath or water-closet turrets, and the necessity for escape staircases at this end has been made the occasion for providing verandahs.

The wards are warmed by means of (*a*) open ventilating fireplaces, and (*b*) low-pressure hot-water apparatus. The open fireplaces have been made by Messrs. Hendry & Pattison, under the architect's direction, specially for this hospital. Fresh external air is supplied to these stoves through a short channel, and is warmed and then passes into the ward. The flues are descending ones, and the stoves are enclosed in dwarf cases in Burmantoff faience. The low-pressure hot-water warming apparatus consists of cast-iron pipes under the ground-floor, circulating to and from a steam heater in the basement. From these pipes branch circulations rise to radiators in the wards. These radiators each consist of a number of copper spiral coils enclosed in an easily cleanable iron case, having open gratings on top and in front. These cases are placed against the external walls under the windows, and the fresh external air is admitted through glazed channels regulated by valves, and, after being warmed by impinging upon the copper coils, is admitted into the ward. There are valvular gratings in the external walls under each bed at the floor line for purposes of ventilation, and there are the windows (one to each bed) on opposite sides of the ward. The ordinary double-hung sashes are supplemented by hopper-hung fanlights. There are two means of exhaust ventilation to each ward in addition to the open windows, viz.: (*a*) open fire-places, and (*b*) vertical shafts. There are four open fire-places to each ward. These have been supplemented by vertical shafts, which are 14 inches square internally, and lined with salt-glazed bricks with rounded internal angles. There are three to each ward, and an upward current is generated in each shaft by means of a copper steam coil. Two connexions with each shaft are made in each ward—one at the floor line, and one at the ceiling line—and valvular gratings are provided in each opening, so regulated by hand gearing that when the upper one is open the lower one is closed, and vice-versâ.

The water-closet turret is placed on the east side of each ward, and separated therefrom by a lobby having windows on both sides. This turret contains two water-closets of the "corbel" pattern, leaving the paving quite clear underneath, a bed-pan sink, and a scalding-sink. The walls have a dado of glazed bricks, and the floor is paved with terrazzo, laid with a fall to a channel and outlet, so as to be easily washed out. This turret is warmed by a radiator. The bath-room is placed at the "administrative" end of the ward, and contains two baths and three lavatory basins. It has a dado and terrazzo paving similar to the water-closet turret, and is warmed by a radiator. The duty-room or ward scullery is so placed that by means of inspection windows it can overlook both the main ward and the separation ward. It has a dado of glazed brick, and is paved with terrazzo. It is provided with a gas hot closet, and is warmed by a radiator. The "administrative" corridor is 38 ft. long and 7 ft. wide, and has, in addition, a large bay window. The corridor is warmed by a large radiator.

The separation ward (24 ft. by 15 ft.) contains two beds, and has its own water-closet turret, so that complete separation is effected. The staircase leading to the first floor is arranged so as to be quite separate and distinct from the wards and appurtenances on the ground floor. There are six isolation pavilions, two containing four single-bed wards each, and four having each one ward for four beds. Each isolation ward, whether for one bed or for four beds, has its own water-closet and other appurtenances.

The airing courts are placed between the pavilions, and are laid out with grass and tar paving. They take the form of terraces with a southern aspect, and lead direct from the covered ways.

There are two groups of discharge wards—one for scarlet fever, and one for enteric fever and diphtheria. Each consists of undressing room, the bath-room, and the dressing-room. A waiting room for friends of patients immediately adjoins. The mortuary building is placed as near the front entrance as possible, and comprises mortuary, post-mortem room, and viewing-chamber.

The official block comprises committee room, medical superintendent's offices, office for assistant medical officers, and sitting and bedrooms for the latter; also waiting-rooms, &c. The kitchen and stores are centrally placed so as to be convenient for distribution to both the hospital wards and to the nurses' and servants' homes. The cooking in the kitchen will be by steam and gas, no coal being used. The kitchen is paved with terrazzo, and the walls are lined throughout with glazed brick. The main genera store consists of basement, ground floor, and gallery with fittings in birch and pitch pine for the reception of goods of all descriptions, together with a meat cooling room in the basement. There are also offices for the steward and his clerk, with sample room adjoining. The store yard is arranged so as to be opposite to, and close to the non-infected entrance, and of easy access therefrom, and is overlooked from the steward's residence. Immediately to the rear of the kitchen and stores are placed the matron's offices, with linen store and needle room, and a little further to the south, and in exactly the centre of the whole hospital, is the office for the superintendent nurse, and the dispensary. The

octagon formed by the junction of the four principal covered ways or corridors at this point is the central point for all telephonic communications and fire alarms.

There are three separate and distinct "homes"—one for nurses under the resident control of the matron, one for female servants under the resident control of the housekeeper, and one for male servants under the similar supervision of the steward. The nurses' home consists of three blocks of buildings—one, called the "main block," containing the dining rooms and general sitting rooms, together with bed-rooms for forty day charge nurses; one block containing bed-rooms for seventy-four day assistant nurses; and the other block containing bed-rooms for eighty night nurses. The nurses' dining-rooms and general sitting-rooms are large apartments with open roofs, and have bay windows with southern aspect, the floors being of wax-polished pitch pine. Each nurse has a separate bedroom with fireplace, and the whole of the floors are wax-polished. The corridors are broken up by bay windows. Each block has two stone staircases, one at each end of main corridor, to ensure escape in case of fire. The home is fireproof throughout, all walls, partitions, floor construction, &c., being of either brick or cement concrete. The matron has a suite of apartments on the ground floor of the main block.

The female servants' home consists of two buildings—one of one story in height, containing the dining-room, general sitting-room, sitting-room for superior servants, and housekeeper's apartments; and the other a three-story building, containing bed-rooms, cubicles, &c., together with bath rooms, lavatories, &c. There are six separate bed-rooms for superior servants, the remainder sleeping in large and well-lighted cubicles. The staircases are in duplicate, as at the Nurses' Home. The home for male servants is placed to the west of the general stores, and immediately to the rear of the steward's residence, and comprises two dining-rooms, one for superior and one for ordinary servants, and cubicles on two stories. The residence for the Medical Superintendent is a detached building, placed near the Shooter's Hill-road. In connexion with the training of medical students there is provided a lecture room, together with laboratory, cloakroom, and lavatory.

There are two complete laundries, one for the patients and one for the staff, and of about equal size. The wash-houses are lined throughout with white glazed bricks, and paved with terrazzo. The ironing rooms are lined with glazed brick dado, with Ruabon bricks above, and have wax-polished pitch pine floors, except the space under ironing machines, which will be laid with terrazzo. The arrangements for drying the linen have been specially designed. As steam is required in connexion with the warming apparatus, hot-water supplies, cooking, laundry, electric lighting, &c., a large provision has to be made. There are three Lancashire steam boilers, 30 ft. long, 8 ft. diameter, fitted with Henderson's automatic self-cleaning furnaces. Special arrangements have been made to economise the consumption of fuel. Adjoining the boiler house are placed the destructor and the disinfecting apparatus. The destructor consists of a large furnace, with flue leading into the main chimney shaft. In this destructor will be cremated the whole of the refuse from the wards and elsewhere.

The existing sewer in Shooter's Hill-road not being of sufficient capacity to take the whole of the hospital drainage, it became necessary to provide an outfall in the direction of Eltham, and this was constructed at a cost exceeding 3,000*l*. Into this outfall sewer the whole of the soil drainage will discharge; but the rain water from the roofs will be collected in an open tank holding 180,000 gallons, and will be pumped up from thence for use in the laundry. There is an excellent fall for the whole of the drainage towards the outfall sewer, but automatic flushing manholes will be provided at the upper end of every main section. There will be specially constructed fresh air inlets at the bottom of the main system, and the upper portion of this system will be connected with the main furnace chimney shaft. Each principal manhole will have a ventilating pipe rising 6 ft. above the eaves of the roof of the nearest three-story building, and, except in the case of one-story buildings, all soil pipes will be connected to drains without traps, and will rise 6 ft. above roof, with open ends.

A water-tower has been erected, with a storage tank above same capable of holding 20,000 gallons, this tank being filled without pumping by the ordinary pressure of the water company. In addition to the ordinary water supply from the Kent Water Co.'s low-pressure mains, a fire main has been laid on to the hospital from the water company's high-pressure main. This fire main has been laid throughout the hospital as a separate and distinct service, and connects up with the internal and external fire hydrants which are laid throughout the building.

The warming of the main wards has already been described. The same system of low-pressure hot-water apparatus applies throughout the hospital, except in some few instances where the circumstances of the case necessitated the use of steam. In each separate building a steam heater is placed in the basement, and flow and return pipes are arranged to and from this heater. The same system applies (with separate heaters) to the hot-water supplies. The steam mains to these heaters come from the main boilers, and run in the complete system of subways which extend throughout the hospital.

In consequence of the presence of clay in the foundations, and of the principal buildings having to be erected on the slope of a hill, very extensive foundations in Portland cement concrete and brickwork had to be provided. It was also considered prudent to build a great portion of the brickwork in cement mortar, and the remainder in blue lias mortar, and, as a precaution against the somewhat exposed position in relation to south-western gales, to face the buildings with the best hard-pressed red Leicestershire bricks, and to point them in cement. The whole of the buildings throughout have floors, passages, and staircases of fire-proof construction, and all buildings occupied at night by more than twenty-five persons have duplicate staircases for escape in case of fire. The floor finishings are as follows:—To all wards, Indian teak; to all dining rooms, sitting rooms, and bed rooms, pitch pine. All wooden floors are wax-polished. All passages, corridors, landings, lavatories, bath rooms, and water closets are paved with terrazzo. All lavatories, bath rooms, and water closets have dados of glazed brickwork. All sinks, lavatories, and water closets are arranged on the corbel or bracket principle, clear of the floor, and all sinks stand 2 inches clear of the wall. All baths are of enamelled porcelain, and stand on glazed feet clear of the floor. Access to and from the several buildings is obtained by means of covered ways with open sides, and under these covered ways run a complete system of subways throughout the hospital, in which are placed the several steam, water, and gas mains, and the main leads for the electric light.

The systems of electric lighting, telephones, and fire alarms were arranged by Professor Kennedy, F.R.S. The hospital is lighted throughout by electricity, the current being supplied from special plant. This consists of three steam engines and dynamos, of 50 indicated horse-power each, and a storage battery of sixty-four cells, with a capacity of 500 ampere-hours. The lighting of the wards and offices is by incandescent lamps, arc lamps being used in the stores, kitchen, laundry, and boiler house, and for lighting part of the grounds. The whole of the buildings are connected up by telephone to a small "central exchange" placed in the superintendent nurse's office, which is placed in the centre of the hospital.

The cost of the hospital, including all fittings, apparatus, and machinery, but exclusive of land and furniture, has been 240,000*l*. The architect was Mr. T. W. Aldwinckle, of Westminster. The building contractors employed upon the works were Mr. C. Wall, of Chelsea (who had five-sixths of the whole); Messrs. H. Wall & Co., of Kentish Town; and Messrs. Shillitoe & Son, of Bury St. Edmunds. The roads and yards were executed by Mr. Thomas Adams, of Wood Green; the boilers by Mr. Thos. Beeley, of North Hyde, Manchester; the heating apparatus, hot-water supplies, and boiler-house fittings by Messrs. Benham & Sons; the laundry machinery by Messrs. J. & F. May; the external water, steam, and gas mains by Messrs. Sugg; the ventilating radiators and cases by Messrs. W. G. Cannon & Son; the kitchen apparatus by Mr. J. W. Brooke, of Lowestoft; the fire mains and fire appliances by Messrs. Shand, Mason, & Co.; the joiners' fittings by Messrs. Norris & Son, of Sunningdale; the electric lighting dynamos by Messrs. Siemens; the switch-board and instruments by Messrs. Holmes & Co.; the wiring and fittings by Messrs. Julius Sax & Co.; the engines by Messrs. Bellis; and the batteries by the Electric Power Storage Co. Messrs. Dent & Hellyer have carried out the greater part of the sanitary work. Mr. E. T. Larkin has acted as chief clerk of works, with Mr. Rees and Mr. Cornes as his assistants.

Adjoining the hospital a complete ambulance station, built by Messrs. Johnson & Co., of Wandsworth, has been erected, at a cost of 15,000*l*. It provides stabling for sixteen horses, coach-houses for twenty ambulances, superintendent's residence and offices, home for eight nurses, dining-room and cubicles for twenty-five drivers and other male servants, dining-room and cubicles for five laundry-maids and other female servants, together with kitchen, laundry, workshops, stores, and the usual offices.

Correspondence.

To the Editor of THE BUILDER.

ON THE PLAN AND CONSTRUCTION OF HOSPITALS AND INFIRMARIES.

SIR,—Although the time may be at hand when it will be possible, by the employment of scientifically-applied means of ventilation and of the antiseptic treatment, to adopt an arrangement of plan differing from single-ward pavilions, the question demands closer examination than "F.R.C.S." and "Architect" appear to have devoted to it, for fear of a retrograde movement.

The point upon which they place so much stress—viz., architectural effect—is of slight importance to the welfare of patients and of ease in administration, which in a hospital ought to receive first consideration, and other reasons given for reverting to double-ward pavilions are trivial. In fact, I venture to say that by far the majority of those who have had practical experience in hospital work will condemn the dwarf central division, because it obstructs a full view of the beds, and because it is not possible to so thoroughly light a wide ward; for it must be remembered that, although in a single ward a patient now and then may be inconvenienced by glare of light, that light is, in effect, the great health-giver to by far the majority. Ventilation, by whatever means secured, becomes more difficult in a large area, and a central division must retard free circulation of air; moreover, such enlarged spaces would demand greater height, which would further increase the difficulty of securing efficient ventilation, and add to cost as well as to labour in getting from one floor to another.

The real disadvantage of the pavilion plan, particularly in some of the large and recently-erected hospitals, is that of administration, in consequence of the great distances which have to be traversed by the staff; the direction, therefore, in which advance should be sought is concentration of wards, which becomes possible with an efficient system of ventilation and the employment of antiseptics.

Hospitals and infirmaries may be considered "health manufactories," and the arrangement of plan should, as in an ordinary manufactory, principally be considered with a view to perfection of work and its accomplishment with ease and despatch.

What I would suggest is that instead of erecting detached pavilions of several stories, it might be better to spread out the wards on one story only, placed side by side and lighted by continuous lantern lights. Such an arrangement would secure greater comfort to the patients, simplify ventilation by mechanical means, and very considerably reduce corridor communication, as well as dispense with the inconvenience of staircases and lifts, thereby facilitating administration.

For the accommodation of the staff there would be no objection to buildings of several stories, but with all the patients compactly arranged on one floor level their wants could be easily supplied, and other difficulties of the pavilion plan would be overcome.

I am fully aware that only those who study what is possible with the plenum system of ventilation properly applied can realise the practicability of such an arrangement; yet by its employment I feel convinced that some such revolution in hospital planning will be accomplished, and do not doubt that in time it will be demanded, partly in consequence of the great cost of the pavilion plan, but more particularly in consequence of the excessive labour thereby involved.

WILLIAM HENMAN, F.R.I.B.A.

SIR,—I, perhaps with others, have lingered hoping to hear some reply to the suggestive letter of "F.R.C.S." in your issue of June 27.

The case, perhaps, lies in the way that has been suggested, that architects, although they have to master the interminable restrictions and technical details connected with the best hospital planning, are largely, if not entirely, dependent upon the medical and surgical professions for suggestions and requirements which shall bring the buildings which public philanthropy would erect in line with the continued advances made in medical and surgical treatment.

The habit of the medical profession is to investigate, and that they should investigate hospital construction is most desirable, providing that a concensus of opinion, medical and architectural, may put on one side anything which favours only of medical fad and idiosyncrasy.

The Local Government Board has its own opinions—sound, no doubt; these have to be enforced and conformed with in certain classes of infirmaries, while in many other cases, although the architect may have many suggestions to make, he is but the servant of inexperienced committees who do not sufficiently take the medical staffs of the institutions in question into their confidence.

The pavilion plan is with us; it seems now to be recognised as a conservative item; whether it has come to stay remains for those gentlemen whose duty calls them to walk daily its wards. While the principles connected with this system have continued a long line of improvements in many valuable details have come to us, though the actual form of block is unchanged since M. Tollet propounded the form.

No doubt one of the chief factors in its retention was the idea of cross ventilation—so-called natural ventilation—intermittent and variable to a degree, and one impossible of controlling with any satisfaction; while another point, not to be overlooked, was the health-giving constituents of sunlight.

The *plenum* system is cited by "F.R.C.S." This, as compared with the so-called natural ventilation which cannot rightly be named a system, has never been argued to a satisfactory issue by both medical men and architects.

Natural ventilation has the advantage of freeing the building from air ducts which cannot be got at for cleansing, and it is possible to get a building with no shaft longer than the thickness of an adjacent wall.

Every mechanical system, so far as I know, presents this insuperable difficulty of miles of tubes and ventilating flues and fixed windows.

"F.R.C.S." suggests a "mid-feather;" this may be suggestive of a ventilating passage capable of easy inspection and cleansing. If these proposals are scientific and practical, a revolution of ward and administrative planning is at hand, which, while increasing the efficiency of nursing and supervision, shall reduce the great cost attendant on the pavilion principle.

There is no architect cognisant of the difficulties attendant on hospital construction who does not desire, first, to know what are the demands of medical science; and, secondly, by study, to comply with them as far as practicable.

This is surely a doctor's question, and a commission of the medical, surgical, and architectural professions to inquire and report on the subject would be fraught with good, "pro bono publico."

WILLIAM A. PITE, F.R.I.B.A.

TRURO HIGH SCHOOL FOR GIRLS.

SIR,—Mr. Trevail had no share in designing this building, mentioned in your last issue (page 104). But his professional feeling has allowed him to help me in carrying it to a successful result, for which I am much indebted to him.

Incidentally, the design embodies an attempt to suggest to Cornish architects how to use their native granite.

E. R. ROBSON.

The Student's Column.

RURAL DRAINAGE.—VI.

PRACTICALLY, the first step in the design of a village drainage system is to determine the position of the outfall. This will be found at some point in the stream course which carries off the surface water from the district. The particular point to be selected depends upon several considerations:—

1. The amount of fall required to carry off the sewage.
2. Length of outfall sewer.
3. Avoidance of flooding or water logging.
4. Availability of land for irrigation purposes or for the construction of tanks.
5. Local prejudice.

The amount off all required is such that when apportioned throughout the system, each section shall have the amount necessary to produce such a velocity in the sewage as will effect "self-cleansing."

The velocity necessary in order to render a sewer self-cleansing is such as to prevent the deposit of matters in suspension, and also to move along the bed of the channel any solid substances. This velocity has been variously stated as the result of experiments and observations at from 2 ft. to 3 ft. per second. Small sewers, such as are usually required in rural drainage, should be designed so as to give a velocity of 3 ft. per second to their contents when flowing half-full.

The following table by M. Dubuat, giving the velocity necessary to remove certain solid substances, is taken from *Sanitary Engineering* by Baldwin Latham:—

	ft. in.	
River mud, semi-fluid	0·3	per second.
Brown pottery clay	0·3¼	,,
Common clay	0·6	,,
Yellow sand, loamy	0·8½	,,
Common river sand	1·0	,,
Gravel, size small seeds	0·4½	,,
,, ,, of peas	0·7⅝	,,
,, ,, of beans	1·0½	,,
Coarse ballast	2·0	,,
Sea shingle, about 1 in. diameter	2·2	,,
Large shingle	3·0	,,
Angular shingle, size of hen's eggs	3·3	,,
Broken stone	4·0	,,
,, agglomerated, or schistous rocks	4·4	,,
Rocks with distinct layers	6·0	,,
Hard rocks	10·0	,,

The velocity of flow of sewage in channels is dependent upon the amount of fall and the frictional resistance of the walls or wetted surface of the channel. The principal part of the friction is proportional to the square of the velocity and is nearly the same at all depths. The friction, however, varies according to the surface of the fluid exposed to the solid in contact therewith in proportion to the whole quantity of fluid—that is, the friction for any given quantity of water is as the surface of the bottom and sides of a river directly, and as the whole quantity of water in the river inversely. Therefore, supposing the whole quantity of water to be spread on a horizontal surface equal to the bottom and sides, the friction is inversely as the height at which the river would then stand which is called the hydraulic mean depth (Eytelwein's hydraulics). The hydraulic mean depth may be simply stated as the sectional area of a stream divided by its wetted perimeter. These observations are embodied in the celebrated Chezy formula.

$$V = c\sqrt{rs}$$

where V = velocity in feet per second.
,, R = hydraulic mean depth.
,, S = surface inclination, or the length of the channel divided by the fall.
,, C = a co-efficient.

In a most interesting paper contributed to the proceedings of the Institution of Civil Engineers, vol. cxii., by Messrs. W. Santo Crimp, and A. M. Bruges, the authors say: "In this formula (Chezy's) the frictional resistances are supposed to be proportioned to $\sqrt{r}$, although recent research has shown that the resistances are not proportional to that power of r, but to other powers which depend upon the roughness of the wetted surface, and upon other factors. This has been met in some later formulas by giving to the co-efficient c a variable value, usually involving r, while the $\sqrt{r}$ is retained in the formula."

The authors have endeavoured to construct a simple formula for all sizes of channel, if of good brickwork or of cast-iron, which should be sufficiently accurate for every practical purpose, and yet should give results closely approximating to those obtained by the more elaborate formulas of Messrs. Darcy & Bazin, and of Messrs. Gangaillet and Kutter.

The formula as proposed for sewers and iron water pipes takes the following shape:—

$$v = 124\ \sqrt[3]{r^2}\ \sqrt{s}$$

where v, r, and s have the respective meanings given above.

The hydraulic mean depth of a pipe of circular section, flowing full or half-full, is the same, and is equal to the diameter of the pipe divided by 4.

The following table shows the inclination which must be given to circular pipes flowing full or half-full, in order to produce a velocity of flow equal to 3 ft per second; also the discharge in gallons per minute when flowing half full:—

Diameter of Pipe. Inches.	Velocity. Feet per Sec.	Inclination.	Discharge (½ full.) Gals. per min.
4	3	1 in. 62	49
6	3	1 ,, 107	110
9	3	1 ,, 183	248
12	3	1 ,, 269	441
15	3	1 ,, 362	690
18	3	1 ,, 462	993

The following table gives the approximate proportionate values of the area, wetted perimeter, hydraulic mean depth, velocity, and discharge of circular pipes under various conditions:—

	Area.	Wetted Perimeter.	H. M. D.	Vel.	Discharge.
Flowing full	1·00	1·00	1·00	1·00	1·00
,, ¾ ,,	·81	·67	1·20	1·09	.88
,, ⅔ ,,	·69	·60	1·15	1·07	·74
,, ½ ,,	·50	·50	1·00	1·00	·50
,, ⅓ ,,	·31	·40	·78	·89	·27
,, ¼ ,,	·19	·33	·59	·76	·15

It is clear from the above table that with pipes of circular section, and with a given diameter and fall, the calculated velocity can only be maintained where there is a uniformity of flow. Thus a pipe flowing half full, with a velocity of 3 ft. per second, would only have a velocity of 3 × ·76 = 2·28, or about 2 ft. 3 in. per second when flowing one-quarter full.

In cases where the flow is very variable, this difficulty is much reduced by using pipes having an egg-shaped section. In this form of pipe the reduction in the wetted perimeter is more nearly proportional to the reduction in the sectional area of the fluid, the section approaching to the V-shape, in which the ratio of the wetted perimeter to the sectional area (hydraulic mean depth) is always the same.

Small sewers under 18 in. in diameter are usually made of stoneware, and are best constructed circular in section on account of the difficulty in obtaining uniformity. It is customary to construct sewers so that they may convey the maximum daily flow when one-half or two-thirds full.

In order to obtain a certain velocity (3 ft. per second) in the sewage with a given fall, a pipe of a certain fixed diameter must be employed, but there is another consideration affecting the diameter of the pipe, viz., the volume of sewage to be discharged.

The discharging capacity of a pipe is obtained by multiplying the sectional area of the fluid by its mean velocity.

If g = discharge in gallons per minute.
,, d = diameter of pipe in inches.
,, f = fall in feet.
,, l = length of pipe in yards

Then when flowing full—

$$g = \sqrt{\left(\frac{(sd)^5 \times h}{l}\right)}$$

The discharge when flowing partially full can be calculated by using the multiplier given in the table above.

In calculating the available fall in any section of the proposed system, it must be remembered that the position of the sewer below the surface of the ground will depend upon the circumstances of the property to be drained. The principle has been laid down that "a house cannot be called effectually drained unless the water is taken away from the floor of its lowest story," and the following illustration is given:—

	ft.	in.
Take the least height which a basement story ought to be	7	0
Thickness of a timber flooring on sleepers	0	9
Covering of the drain, say brick flat	0	2½
Height of drain inside	0	9
Current of drain inside the premises, say 1 in. to 10 ft. for a house 50 ft. deep	0	5
Current outside the house, *i.e.*, in the street	0	3
Height of cross drain above the bottom of main drain at least	0	6
	9	10½

This would give (9 ft. 10½ in.) or 10 ft., as the least, depth from the surface of the street to the bottom of a main drain (of 18 in. diameter), and this may be fairly assumed as the least depth at which a private house of the most ordinary description can be effectually drained; but this considers it only as for the drainage of one house."—"Drainage of Lands, Towns, and Buildings," by G. D. Dempsey.

This principle is rarely adhered to in systems of rural drainage, but the illustration is useful as showing the method of calculation.

GENERAL BUILDING NEWS.

NEW CHAPEL, CLERGY SCHOOL, LEEDS.—The new chapel for the Leeds Clergy School was consecrated a few days ago by the Bishop of Ripon. The building is designed in the Seventeenth Century style, and is built with the local bricks with stone dressings. The barrel ceiling is divided into panels by moulded ribs, the panels being of plaster covered with a vine-leaf enrichment in low relief. The organ will be placed in the gallery over the ante-chapel, which is to be divided from the body of the chapel by an oak screen. The side walls are to be panelled in oak to a height of about 8 ft., and an oak reredos is in course of construction. The floors are laid with grey and white marble with marble steps. With the exception of the altar, all the internal fittings are of a temporary nature. The chapel is connected by a corridor with the hall of the Clergy School. The heating is by hot water, supplied by Mr. Jeffries of Westminster. Mr. T. Hannam, of Leeds, is the contractor who has carried out the work from the designs of Mr. Temple Moore, architect, of Hampstead.

CATHOLIC SCHOOLS, GRIMSBY.—On the 30th ult. the boys' new day school, which has been erected by the Catholic parishioners of St. Mary's, was opened at Grimsby. The school is designed to accommodate 180 senior boys, is of Early English architecture, built with the best stock bricks and Bath stone dressings, and comprises three class-rooms, each 28 ft. long by 22 ft. wide, and 18 ft. 6 in. high, divided by patent swivel partitions, so that when folded back they form one large room, 66 ft. 4 in. long by 28 ft. wide. The rooms are approached from the side corridor facing Wellington-street, the two main entrances being from the same street. The main front of the building faces the church grounds. At the east end of the schools are arranged the cloak-room, lavatory, and teachers' room, the latter serving the purpose of a retiring-room during entertainments. The internal walls have a glazed brick skirting, and above the same is a dado of the best stock bricks, 5 ft. 6 in. high. The floor of the corridor is paved with wood blocks, those of the cloak-room and entrances with 4 in. square red, hydraulic-pressed tiles, those of class-rooms and teachers' room with 1¼ in. red wood boards. The schools have been designed and carried out under the superintendence of Messrs. Croft & Bentley, architects, Grimsby and Louth, at a cost of 1,200*l.*, exclusive of furniture. The builders are Messrs. Hewins & Goodhand, of Grimsby.

SEAMEN'S CHURCH, MIDDLESBROUGH.—The Archbishop of York recently opened a church in connexion with the Tees Station of the Mission

to Seamen at Middlesbrough. The church is intended to accommodate 350 persons. There are two side aisles, and the chancel and two vestries are formed of screen work of pitch-pine. The woodwork has been carried out by Messrs. Lithgow & Storry, from the designs of Mr. J. M. Bottomley, architect, and the decorations were carried out by Messrs. J. Scott & Co.

Public Rooms, St. Austell, Cornwall.—Public rooms have just been opened at St. Austell, near the junction of the Truro and Bodmin-roads. The building was erected from the designs of Mr. S. Trevail. The outer walls are of local blue and white granite. The chief feature of the building is a hall, 80 ft. long, 40 ft. wide, and 33 ft. high. This is provided with an organ loft and platform at one end, and a gallery at the other. It has four exits. Underneath this room are a drill hall, Council chamber, Surveyor's office, rate collector's office, and a fire station. Mr. T. Parsons has acted as clerk of the works, and the contractor was Mr. Thomas J. Smith, of St. Austell.

Chapel, Newquay, Cornwall. — A new U.M.F.C. Chapel has just been opened at Newquay. The architect was Mr. John Ennor, jun., of Newquay, and the contractor Mr. John Colliver, of Truro.

Technical School and Free Library, Widnes.—The new technical school and library which have been erected at Widnes are built upon a site abutting on Victoria-road, and having elevations to three of the leading thoroughfares of Widnes. The building, which is faced with machine-made Ruabon bricks—its dressings being in terra-cotta—is divided into two sections, a public free library in the one, and a technical science and art school in the other. The public library, with ample storage room for books and papers, is centrally planned. The newsroom has a prominent position, and is a one-story building, with open-timbered roof. The boys' room, being placed next to the librarian's, will be under direct supervision. The lending library is lighted both from the top and sides. The technical school comprises chemical laboratory, with balance, store, and reagent room, chemical lecture-room with preparation-room, handicraft-room, and other classrooms, all of which are on the ground floor, as is also the committee-room, the chemical department and handicraft classroom being isolated from the rest of the school. On the first floor are elementary art rooms, painting-room, modelling-room, classrooms and keeper's quarters. The building has two main entrances—one to the library, and another to the technical school—both appearing on the principal façade fronting Victoria-road. A separate side entrance is provided for the lending library. The whole of the work has been carried out by Mr. I. Dilworth, contractor, Wavertree, from the designs of Messrs. Woodhouse & Willoughby, of Manchester.

Congregational Church, Harpenden, Herts. — A new Congregational Church for Harpenden is being erected in Vaughan-road. The building is of Gothic design, and it is erected chiefly of red brick with white Monk's Park stone dressings. At the north end will be erected an octagonal ventilating turret, framed in wood, with a spiral roof covered with copper. The interior of the building, which will be faced by red brick with pressed brick dado and stone bands, &c., will consist of three aisles. The floor will be composed of wood blocks laid diagonally, while the roof will be framed in pitch pine. The new church, which has been designed by Mr. Arthur E. Anscombe, is planned to seat 260 persons, or 320 by using the side aisles, and provision is also made for the erection of a gallery at the north end, which will provide accommodation for an additional seventy persons. The builder is Mr. T. H. Kingerlee, of Oxford.

The Jesmond Building Scheme.—At a meeting of the Newcastle Town Improvement Committee, held on the 29th ult., the vendors' plans for the new West Jesmond estate, deposited on behalf of Mr. Forsyth, were again considered and finally approved. The land referred to lies on the east and west side of the railway, and faces the Town Moor on the latter side, access to which is to be by means of a new 40 ft. road. The new railway station is also a part of the scheme. The portion approved embraces upwards of 400 houses, and the architect is Mr. Charles S. Errington, of Newcastle.

Town Hall, Holywell, Flintshire.—The new town hall at Holywell, which has for some time past been in course of erection, has just been completed. The building is situate in front of the market hall, with a front elevation of Gwespyr stone, and in the centre is a tower from which depends by an iron bracket the town clock. The chief rooms in the building are a Council-room, a working men's clubroom, and a room which occupies practically the whole of the second floor. The whole of the work has been carried out by Mr. Abel Jones, Rhyl, from plans prepared by Mr. J. Lloyd Williams, Denbigh.

Theatre, Newcastle. — The newly-erected Grand Theatre, Byker Bridge, Newcastle, has just been opened. The building is situated at the extreme west end of Shields-road, and is designed to seat about 2,500 people. Three sides of the theatre abut into public streets. There is, therefore, a complete arrangement of exits and entrances, three being provided for the pit, two for the gallery, and one large staircase for the circle. The length of the building from the curtain to the back of the pit is 67 ft., and the width of the pit is 58 ft. The stage is 58 ft. by 44 ft. 6 in. It has a commodious suite of dressing-rooms on each side. A separate staircase leads from each suite direct to the street. The principal entrance to the building is surmounted by a turret. This entrance leads into a vestibule, from which the circle and private boxes are approached by means of a marble staircase. The building is lighted by electricity, and warmed by hot water. The ventilating and sanitary arrangements have received special attention. The designs have been prepared by Mr. Wm. Hope, architect, Newcastle, and have been carried out by Mr. S. F. Davidson, builder, Newcastle. The decorating and furnishing have been executed by Mr. Dean, of Birmingham; electric lighting by Messrs. Rowland, Barnett, & Co.; the plumbing by Messrs. Tweddle; and heating by Messrs. Dinning & Cooke.

Laundry Offices, Edinburgh Royal Infirmary.—The managers of the Royal Infirmary have approved of plans for new laundry offices, and a warrant has been granted in the Dean of Guild Court, Edinburgh, for their erection. The buildings are to be placed to the west of Lauriston-lane. The buildings have been so planned that the patients' laundry and the staff laundry are separate from each other, although under the same roof. The patients' clothes will go into a delivery-room; from it to the washhouse, which is 74 ft. by 31 ft.; from the washhouse to the drying-rooms; from the drying-rooms to the ironing-room, which measures 67 ft. by 33 ft.; and from it to the dispatch-room, which is 54 ft. by 24 ft., without having to traverse any part of the route twice. The staff clothes will first go into a delivery-room, which measures 20 ft. by 20 ft., and pass from it to the washhouse, which is 44 ft. long by 24 ft. broad; from the washhouse to the drying-rooms; and from the drying-rooms to the ironing-room, which is 52 ft. long by 26 ft. broad; and from ironing-room to dispatch-room, also without having to traverse any part of the route twice. The drying-rooms are in two stories. Lifts and staircases connect the two floors. The lower floor is provided with sliding drying-horses, while the upper one has fixed bars. Air, heated by passing it over coils of steam pipes, will be driven into the drying-rooms by a fan, while another fan will exhaust the air from them. The engine-room is placed in the basement. On the first floor, and in a small tower-like block at the south-west angle, sleeping accommodation is provided for thirty-one laundrymaids in separate rooms or cubicles. Besides this there is a large dining-room with windows to the south and west, kitchen, lavatories, baths, &c.; a separate sitting-room and bath-room are provided for the chief laundrymaid. None of the living or sleeping accommodation is placed over the ironing-rooms or the washhouses, and every room has its own window. The buildings are to be of stone, with slate roofs, and are to be entirely lined with white glazed bricks, with the exception of the living and sleeping rooms, and they are to be, as far as possible, fireproof. The architects are Messrs. Sydney Mitchell & Wilson.

Catholic Church, Hebden Bridge, Yorkshire.—A new Catholic Church has just been erected at Fairfield, Hebden Bridge. The church will seat nearly 400 persons. The extreme external length is 88 ft., of which the aisles take 58 ft., sanctuary 19 ft., porch, baptistry, &c., 11 ft. The width of the church is 32 ft., and width of sanctuary 17 ft. It has three aisles. At the west end, over the entrance and baptistry, is a gallery for the choir and organ, 16 ft. by 18 ft. The aisles and sanctuary are laid with granite-faced concrete, and the floor area for seating with wood block flooring. The priest's sacristy connects the church with the presbytery, under which is the choir sacristy. The whole of the windows are of pale-tinted cathedral glazing. The roof is partially of pitch-pine, and is divided into rectangular compartments by the intersection of the timbers. In the porch is the holy water stoup, a specially-designed stone basin in a niche projecting from the wall, and over the same is a cross, carved in relief. Near the altar are the piscinas, which are designed very much in the same way. The entrance is at the west end, with a niche over the doorway for the insertion of a figure, with shafts and blocks left for carving. A slight tracery window is placed in the east end. The presbytery contains dining and drawing-rooms, waiting-room, kitchen, and pantry, with basement under the whole; three bedrooms, bath, and library, in addition to the attics. The work was designed by Messrs. J. F. Walsh and W. Wrigley, of Hebden Bridge, under whose supervision the work has been carried out. The seating is being carried out by the executors of the late James Lister. The contracts have been carried out by the following:—Mason and bricklayer, Mr. Thomas Uttley; joiner, Mr. Jas. Lister; plasterer and slater, Mr. T. Tucker; plumber, Mr. J. Boocock; wood block flooring and concreting, The Wood Block Flooring Company, London; heating, Messrs. J. Naylor & Sons, Halifax.

School, Newcastle.—The new school building erected on Elswick-road, Newcastle, has just been opened by the Mayor. The architects of the new school are Messrs. Dunn, Hansom, & Fenwicke, of Newcastle. The school provides accommodation for nearly 1,600 scholars, who are distributed as follows:—Infants' school and special subjects on the ground floor, places being provided for 600; the junior mixed school on the first floor; and the senior mixed on the second floor. The ground floor is entered by the infants on the south side, and for the technical subjects at the east and west ends of the central corridor, which runs from end to end of the building through the central hall. Out of the corridor open, on the north side, three class-rooms for infants at the end of the central hall, and also two large schools in the wings, 32 ft. by 22 ft., one a wash-house and laundry, and the other for manual instruction. On the south of the corridor are two more large schools, 27 ft. 6 in. by 22 ft., in the wings, one for cookery and the other for manual instruction; and the large central hall, 45 ft. by 30 ft. All these rooms are 16 ft. in height, which is also the height of the first-floor rooms, while the top floor is 14 ft. high. The remaining space on the south side of the central corridor is filled up as follows:—On the one side a teachers' room, and on the other an infants' lavatory, and also a room for the head teacher, and an infants' cloak-room, opening out of the central hall. The last-named rooms are low, to admit of more teachers' rooms on the mezzanine floors above, which are reached from the landings on the main staircases. The first and second floors are reached by the main staircases, which are situated at either end of the central corridor. These floors are practically reproductions of the ground floor, there being three class-rooms and two schools facing north, and two more schools and central hall facing south, the intervening space being taken up with lavatories and cloakrooms. On each floor, by the removal of a swivel partition, the class-room at the end of the central hall can be thrown into it. The style of the building is Queen Anne, with stepped gables and moulded string courses and cornice. The mouldings and dressings are of red terra-cotta. The terra-cotta has been supplied by Mr. J. C. Edwards, of Ruabon. A half timber gable has been introduced in the centre of the south side. The contractor for the whole building was Mr. Walter Scott, of Newcastle, and the heating and ventilation have been carried out by Messrs. Emley & Sons. The ground floor is laid with wood blocks by the Wood Block Flooring Co., of London. The lavatory fittings have been supplied by Messrs. Doulton, of Lambeth. Messrs. Dinning and Cooke, of Newcastle, have made the iron boundary railing. Mr. W. Boocock was the clerk of works.

New Markets, Halifax.—The Halifax New Markets, which the Halifax Corporation have erected at a total cost exceeding 120,000*l.*, have just been opened. The provision of these new premises has brought about a change in the locality. Corn Market, Old Market, and Market-street have all been widened very considerably. The markets have been erected from designs prepared by Messrs. Leeming & Leeming, of London. Operations were commenced in 1891, and in October of the following year the foundation stone was laid.

School, Richmond.—The new County Secondary School and Technical Institute, erected under the auspices of the Surrey County Council at the corner of Kew-road and Selwyn-avenue, Richmond, was formally opened recently by the Lord Lieutenant of Surrey, Viscount Midleton. The building has been carried out under the supervision of Mr. Edward Bath, architect, of Richmond and Westminster, by Mr. J. W. Brooking, contractor, of Richmond. The original plan provides for a large hall at the corner of Selwyn-avenue capable of accommodating 400 persons, behind which will be a class-room for dress-cutting and provision for cookery classes, with a separate entrance for the students attending the classes; while a large corridor will separate this building from the hall. This wing has not been erected at present. The opposite wing contains a class-room 60 ft. by 25 ft., which will at present be used as a hall, and is divisible into three smaller rooms by means of movable partitions. In the main building on the ground floor there are two large class-rooms, several smaller rooms, and accommodation for the head master. Behind the large class-room is a chemical laboratory and balance room. On the first floor is the art school, 40 ft. by 25 ft., with an art class-room adjoining, and an art master's room attached. On the same floor are other class-rooms and the caretaker's apartments.

Memorial Chapel, Derbyshire Royal Infirmary.—The chapel which has been erected at the Derbyshire Royal Infirmary, in memory of the late Sir William Evans, Bart., of Allestree Hall, Derby, was dedicated by the Bishop of Southwell recently. The edifice has been erected by Messrs. Walker & Slater, Derby, from plans prepared by Messrs. Hall & Young, and the estimated cost is about 1,200*l.* It is of red brick, with oak seats and pitch pine wood flooring. It will accommodate, it is estimated, upwards of 100 persons.

Restoration of Charminster Church.—The partial restoration of St. Mary's Church, Charminster, has just been completed, and service was recently held in the nave and south aisle. The original chancel was demolished about the time of the Civil Wars, and for many years the arch was walled up. It appears by the foundations to have been 28 ft. in length. Some fifty years ago a temporary chancel was added. As soon as the north aisle is completed it is hoped that the

chancel will be taken in hand. The architect is Mr. Ponting, the Diocesan Architect. Mr. Merrick, of Glastonbury, was the builder.

SUNDAY SCHOOL, CARDIFF DOCKS. — The memorial stones of the new Sunday School in connexion with Bethel Baptist Chapel, Mount Stuart-square, Cardiff, were laid recently. The architects are Messrs. Jones, Richards, and Budgen, and the contractor Mr. G. H. Parr.

REPAIR OF GRETTON CHURCH, NORTHAMPTON. —Gretton Parish Church underwent renovation in 1893, and among many other improvements effected was the building of a new roof and the providing of new windows. At the commencement of last September the tower, &c., however, were damaged to such an extent by lightning as to need repairing. One of the pinnacles was shattered, whilst the old clock was also interfered with. In deciding to remedy the injury that had just been caused, it was agreed at the same time to take the opportunity of making other necessary repairs. Mr. Halliday, of Stamford, was called in to do the work, Mr. W. Talbot-Brown, of Wellingborough, being the architect. The improvements have now been completed.

RE-OPENING OF ST. JAMES'S CHURCH, OCLE PYCHARD, HEREFORDSHIRE.—The little church of St. James's, Ocle Pychard, has just been reopened after repairs and some additions. The work has been carried out from designs by, and under the superintendence of, Mr. F. R. Kempson, architect, of Hereford.

SANITARY AND ENGINEERING NEWS.

UPPERMILL SEWAGE PURIFICATION WORKS, YORKSHIRE.—On the 29th ult. there were opened at Uppermill the Sewage Purification Works recently completed under the direction of Mr. T. S. McCallum, of Manchester, who gives the following description of the works: "The sewage on entering the works passes through a detritus and screening chamber, in which are arrested any floating matters of large size. Having passed through this chamber the sewage receives an adjusted amount of 'ferozone,' the precipitant in use; then in its further course along the mixing channels the action of the ferozone occurs, and on reaching the tanks the sewage is fairly coagulated. The two precipitation tanks are circular ones, with flat bottoms, and are fitted with the Candy patent automatic sludge removing apparatus. The ferozoned sewage enters these tanks at the bottom by means of a number of down pipes, built in the walls of the tanks. The coagulum formed by the action of the ferozone is by this means of entry deposited directly in the area below the entrance pipes in the form of sludge, and the clarified water works gradually upwards and is finally collected at the top of the tank by a number of shallow channels. By distributing the discharge from the tanks over a comparatively large area, the effluent is withdrawn without setting up currents in the tanks, the aim of the engineer being to have a continuous flow through the tanks upwards so as to economise space and labour, for whenever the deposited sludge requires to be removed, once or twice a day as the case may be, its removal is effected simply by the operator opening a valve and turning a handle for about ten minutes, during which time the floor and sides of the tank have been cleansed by the Candy apparatus, and the sludge discharged at about 18 inches below the water level. In addition to the advantage of this form of tank as regards efficiency and continuance of work (the tanks are never emptied), and the ease with which they are cleansed, is the important one of levels, for, as will be seen, the difference between the invert of the sewer and the delivery of the effluent, and even sludge from the tank, is very little. This advantage is so great that, in some cases, instead of requiring a pumping scheme, on account of want of fall, a gravitation scheme will suffice and so save the cost of installation and maintenance of pumps. In fact, the Uppermill scheme must have included pumping, but for the above arrangement, or, if not, it would have meant a scheme costing three or four times the present one. The sludge discharged from the tanks gravitates to the sludge lagoons to dry and become valuable manure. The tank effluent passes direct to the polarite filters. Comparing the incoming sewage with the tank effluent it is seen that the bulk of the 'suspended' polluting matter has been arrested in the tanks, but, however bright this tank effluent is, it still contains organic matter in solution of a highly polluting nature; this noxious matter in its passage through the polarite filters is brought in contact with the occluded oxygen in the pores of the polarite, combination takes place, with the result that the polarite effluent passes away a clear, bright stream, free from all danger of secondary decomposition and fit to enter any river or water course." Messrs. Fotherby & Son, Burnley, have been the contractors for the works.

WAVERLEY BRIDGE, EDINBURGH.—The new Waverley Bridge has just been completed, and opened from end to end for traffic. The new bridge, which is 72 ft. in width, is about 57 ft. longer than the one it replaced—27 ft. being added on to the south end and 30 ft. to the north. The footpaths on each side are over 12 ft. in width, and the roadway, 48 ft. wide, will give ample accommodation for the station and other traffic. The bridge is carried on six sets of cast-metal columns, seven in a set, and is thereby divided into seven spans varying from 43 ft. to 65 ft. across. The abutments are each 11 ft. in thickness. These columns, which have an average height of 24 ft., carry seven plate girders forming the chief part of the superstructure of the bridge. Between the flanges there are arches of brick which carry the roadway. One of these is closed below so as to form a pipe track across the bridge. This is 11 ft. wide by 5 ft. in height. Concrete has been spread on the top of the arches, and on the top of that again has been formed the street, which is laid with granite blocks. The iron parapet of the bridge is what was taken off the old one, with some new pieces added, and at three of the corners are tall moulded stone pilasters. The fourth corner (on the south-east side) is occupied by shops, and does not require to be finished off in the same way. While the whole bridge is open for traffic there are several portions of the parapet which will not be finished until the two new accesses to the station are made and the new parcel office built. At present these are merely boarded over temporarily. The engineers for the bridge were Messrs. Blyth, Cunningham, & Westland, C.E.

SEWERAGE WORKS, KNARESBOROUGH. — The Knaresborough Council have accepted the tender of Mr. Carrick, of Durham, for the completion of the third section of the Knaresborough sewage works disposal, including the laying out of the land on a farm adjoining to Grimbold Bridge, the contract price being 3,477*l.* Mr. George Wilson, the Town's Surveyor, was appointed as clerk of the works. The total cost of the entire scheme is 8,800*l.* The work is to be proceeded with and completed as soon as possible, in accordance with plans as prepared by Mr. Balfour, C.E., Houghton-le-Spring.

SEWERAGE WORKS, LICHFIELD.—Mr. W. O. E. Meade-King, M.Inst.C.E., held an inquiry recently with reference to an application by the Lichfield Corporation for a loan of 1,000*l.* for sewerage purposes. The Council was officially represented by the Town Clerk (Mr. J. H. Hodson), the City Treasurer (Mr. H. Russell), and the City Surveyor (Mr. C. J. Corrie). The object of the loan is the extension of the present sewers to Sturgeon's Hill, Walsall-road, and Leomansley, and Borrocop-lane, and the construction of a new invert to the storm-water culvert.

SEWERAGE SCHEME, PLEASLEY.— Mr. Rienzi Walton, Local Government Board Inspector, held an inquiry at the Nag's Head Inn, Pleasley, recently, into an application by the Blackwell District Council to borrow 8,800*l.* for the purposes of the Pleasley sewage scheme. Mr. G. H. Hibbert represented the Blackwell District Council, and there were also present Mr. J. C. Wilkinson, Mr. Silcock (Surveyor to the Council), Mr. Eaton (Assistant Surveyor and Clerk to the Pleasley Parish Council), Dr. Littlewood (Medical Officer of Health), and others. It is proposed to purchase 2 acres of land at Pleasley, and 2½ acres at Shirebrook, for outfall works.

WATER SUPPLY, PENICUIK, EDINBURGH.—A report on the question of the water supply for Penicuik burgh was submitted to a meeting of the Police Commission recently. For a considerable period the water supply has been deficient at certain periods of the year, and building operations within the locality have been restricted from fear of a limitation of supply. In these circumstances, Mr. Alexander S. Adam, C.E., Edinburgh, was asked to report on the whole question, and his report was read to the meeting. Mr. Adam refers, at the outset, to the want of storage capacity to regulate supply, but points out that, even without storage, the existing springs should give a very fair supply in the summer months, and he considers that the deficiency must be due to leakage both at the Kirkhill tank and the service pipes throughout the burgh. The tank being built on a gravelly hill, the leakage there would not, he considers, be observable owing to the nature of the material surrounding the tank. He recommends the construction of a tank of about 72,600 gallons capacity to the east of Speargate Lodge, dispensing with Kirkhill tank.

BUDLEIGH SALTERTON RAILWAY, DEVONSHIRE. —Considerable progress has been made in the construction of this line during the last two or three months, and it is anticipated that next October will see the railway completed. The contractors, Messrs. Lucas & Aird, are pushing on the works day and night. Between the junction at Tipton and Otterton the line is, with the exception of a road embankment at Newton Poppleford, practically finished. Operations are now principally centred at Otterton, where a lot of heavy work remains to be accomplished. Preparations are being made for the construction of the bridge over the main road near Otterton Bridge, and it is computed that 30,000 tons of earth and material will have to be conveyed from the various cuttings towards the making-up of the approaches. The station at Salterton is rapidly approaching completion. It will be about 35 ft. in length; the platform (350 ft. in length) being longer than was actually necessary in view of the projected extension to Exmouth. The goods-shed will measure 80 ft. by 40 ft. It is proposed to erect a wooden passenger bridge at the end of the Cricket Field-lane, and another bridge for vehicular and foot traffic is in course of erection near Stoneborough. This structure will be of the same description as the one adjoining the station, and will consist of one span of 26 ft. and two side spans of 16 ft. each.

ELECTRIC TRAMWAY, DOUGLAS.—The Douglas Southern Electric Tramway was recently opened. Starting from a point on Douglas Head 150 ft. above sea level, the new line follows a route along the coast. The direction is southerly, and the tramways skirt the coast line, but continually rise until Walberry is reached, about 200 ft. above the sea. Here one of the new steel bridges, 256 ft. long, with two spans and a centre pier, carries the tramway across the deep ravine. There is then a gradual descent, and further on the roadway swings round a horse-shoe curve, crosses the ravine of Horse Leap over a single-span bridge, and winding in and out among the bluffs of the Keristral Valley and Rhe Bog finally reaches the terminus near Port Soderick, three miles and a half from the starting point. The rolling stock consists of twelve cars, each capable of seating seventy-eight passengers. These are of the American type, the lower floor being fitted with seats running completely across the car, entrance being made from either side. The roof is fitted with garden seats, and each car is equipped with ratchet brakes and a suitable sanding device. The maximum speed is twelve miles an hour. The controllers are of Westinghouse manufacture, and each car is fitted with incandescent lights. The permanent way is laid with 65-lb. Vignolli rails, bolted to steel sleepers laid on concrete. Regarding the motive force, the overhead line consists of two trolley wires, stretched side by side throughout the entire length of the line. All the springs keeping the trolley in contact with the overhead wire are contained in a cylinder mounted upon ball bearings capable of turning a complete circle. Each tram will be able to carry 156 passengers, and weighs dead weight nine and a-half tons. A power station is built of local stone. The engines are of the single-cylinder high-speed horizontal type, running at 240 revolutions per minute. The station is fitted with a pump for raising sea water when fresh water fails. The electrical equipment consists of two Westinghouse dynamos, which will run at 650 revolutions. The entire work of the line has been carried out by the new General Traction Company, Limited, Westminster—chief engineer, Mr. E. Winslow,—under the superintendence of Mr. H. Lavington Fletcher. The bridges were constructed by Messrs. Heenan & Froude, Manchester.—*Manchester Guardian.*

SEWAGE WORKS, BRIGHOUSE.—The first sod was cut, and the first stone laid, of the Brighouse Sewage Works recently. The total cost is estimated at about 95,000*l.*, and the scheme is undertaken solely by the Brighouse Corporation. It will be carried out according to plans prepared and designed by Mr. A. M. Fowler, of Manchester and Westminster. It is intended to treat all the sewage in the natural watershed of the Brighouse portion of the Calder Valley, including, in addition to the Borough, the districts of Southowram, Clifton, Hartshead, Hipperholme, Lightcliffe, a portion of the North Bierley area, Wyke, Bailiffe Bridge, and other adjoining districts. Inquiries are also being made with a view to the sewage from the Borough of Halifax being dealt with at the Brighouse works. The principal contract—that for the construction of the main sewers and the outfall sewer—has been let to Mr. Geo. Taylor, of Blackburn, for the sum of 43,065*l.* 7s. 6d. It is roughly estimated that the works will take about two years to complete. It is proposed to treat ordinary trade effluents at the sewage works, but in the case of trade sewage of an exceptionally noxious character, this will have to be partly cleansed before being admitted into the sewers.

STAINED GLASS AND DECORATION.

EFFIGY OF BISHOP PELHAM, NORWICH CATHEDRAL. — The ceremony of unveiling the effigy erected in Norwich Cathedral to the memory of the late Bishop Pelham was performed recently. This work was entrusted to Mr. James Forsyth, sculptor. On the west panel of the cenotaph there is a mitre; on the south side there are the Diocesan arms empaled with the Pelham arms, and on the north side the Pelham arms alone.

MEMORIAL WINDOW, ST. SAVIOUR'S CHURCH, SOUTHWARK.—Sir Walter Besant recently unveiled a window in the new nave, St. Saviour's Church, Southwark, which has been placed there in memory of Philip Massenger, the dramatist. The window, which was designed by Mr. C. Kempe, is a single light, containing a portrait of Massenger.

FOREIGN.

FRANCE.—M. Guillaume, the Director of the French Academy at Rome, has been re-appointed for a term of six years.——The "restauration" (we hope it is only repair, but that is the word used) of the church of St. Eustache, Paris, is to be taken in hand shortly. St. Eustache can hardly be in need of restoration in the sense in which that operation is generally understood by French authorities.

M. Gion is the architect in charge of the work. ——A competition has been opened at Paris for the erection of two children's hospitals in Rue Etex and Rue Michel-Bizot. The designs are on view at the Hôtel de Ville.——M. Mercié has just completed the bust of Mdme. Miolan-Carvalho, the celebrated singer, and has also put the finishing touches to the statue of Gounod, which is to be erected in the Parc Monceau.——A competition has been opened among architects in the department of the Seine, for the construction of a large group of schools at Courbevoie.——A Committee has been formed for the erection of two monuments at Nancy, one to Paul Verlaine, the other to Edmond de Goncourt.——A monument in honour of Victor Hugo is to be erected at Besançon, the poet's native district.——More than a hundred sculptors and architects have applied to enter into the competition for the design of a monument to the sculptor Pierre Puget, to be erected on the Place de la Bourse at Marseilles. Designs are to be sent in on November 19.——The death is announced, at the age of 73, of M. Alexandre Baulant, the engraver who usually carried out the works of Gavarni and Henri Monnier.——The death is also announced of a Frenchman long settled in Greece, M. Henri Brest, to whom the world owes the preservation of the "Venus of Milo," and France the possession of it in her great art-museum. M. Brest was more than a hundred years old at the time of his death.——The Fine Arts Department of the Paris Municipality has transported the best works in marble in its possession to the Musée Galliera, to form the nucleus of a permanent collection of sculpture.——The diorama entitled "Paris à Travers les âges," painted by Hoffbauer, has been removed to the Carnavalet Museum, where it will shortly be open to the public.

GERMANY.—The Architectural and Engineering section of the Berlin Industrial Exhibition has at last been opened, after a delay of fully two months after the inaugural ceremony took place.——A large competition has been opened at Berlin for a sketch design of a new Academy of Arts and Royal College of Music.——Herr Böhnke, who has held several important offices in the Municipal Board of Works at Frankfurt since 1873, has been elected City Architect of that town.——An International Hygienic Exhibition has been opened at Dresden, and a Traffic Exhibition has been opened at Baden, whilst a further minor exhibition of building materials will be opened in August at Düsseldorf. ——The city of Leipzig has now finally decided on the position of its new Town Hall. It is to be on the site of the old Pleissenberg, lately destroyed to make room for modern improvements which are being so energetically carried out in this city. The new Town Hall will be close to all the principal public buildings, such as the Imperial Law Courts, the University Library, &c., recently erected, and a competition is to be opened shortly with a view of obtaining a suitable design.

MISCELLANEOUS.

SANITARY INSTITUTE CONGRESS.—A meeting of the Local General Committee in connexion with the forthcoming Congress and Exhibition of the Sanitary Institute in Newcastle was held on the 24th ult. in the Council Chamber, Town Hall, Newcastle. The Mayor said the City Council had invited the Sanitary Institute to hold its Congress in Newcastle in September, and the Institute had accepted the invitation. The meeting then proceeded to the election of sub-committees. The Mayor acknowledged the kindness of the College of Medicine, College of Science, and Trinity Presbyterian Church, in placing buildings at the disposal of the Institute. Dr. Armstrong said the exhibition of the Sanitary Institute would take place in Olympia, which had been engaged for the purpose by the Committee. Arrangements had been made for the reception of the Congress by the Mayor in the College of Medicine examination hall as the first part of the programme, for a public luncheon, and for other matters. The Congress would meet for business almost entirely in the College of Medicine, the section for sanitary engineering would meet in the College of Science, and the hall of Trinity Presbyterian Church would be set apart for meetings on domestic hygiene. A great deal of work had been done by the General Committee, and all possible arrangements made. The duty of one of the committees would be to arrange for a garden party. Tnen there was the question of the entertainment of the Duke of Cambridge, and he had to announce that his Royal Highness would be entertained at the Mansion House.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS. —Messrs. Lindsay Neal & Co., constructional ironfounders, of North Wharf, Paddington, have converted their business into a private limited Company, under the title "Lindsay Neal & Co., Limited." The business will remain under the management of the partners in the late firm, who will act as Directors of the Company.

OPEN SPACES. — At their last meeting—Mr. Shaw-Lefevre presiding—the Commons Preservation Society unanimously resolved: "That this Society has learned with regret that the First Commissioner of Works proposes to erect a building in the garden attached to the Charity Commission, thereby seriously interfering with the appearance of Whitehall, and destroying part of an open space which has from time immemorial been unbuilt upon." They decided to send a copy of the resolution to Mr. Akers-Douglas, M.P., and to take other action in the matter. The land is part of the old Privy Garden, described in our "Note" of June 27 last. On July 29, Lady Teynham opened to the public the churchyard of St. Dunstan's-in-the-East, as laid out, at a cost of 50*l.*, by the Metropolitan Public Gardens Association. We understand that through the parishioners' exertions this church, whose removal was lately threatened in pursuance of a scheme under the Union of Benefices Acts, will not be pulled down.

IMPROVEMENTS IN PARLIAMENT-STREET. — In the House of Commons, recently, Mr. Loder asked the First Commissioner of Works whether he had considered the possibility of taking advantage of the contemplated alterations in Parliament-street, in order to construct a subway from some point in the vicinity of Downing-street to Palace-yard for the convenience of Ministers, officials, and messengers. Mr. Akers-Douglas replied that the suggestion had been brought before the Committee on the Appropriation of Sites for Government Offices, and it had been deferred by them for further consideration to next Session.

THE WATER SUPPLY OF EAST LONDON.—In the House of Commons, recently, Mr. H. Samuel asked the President of the Local Government Board whether any arrangement had been come to between the New River Water Company and the East London Water Company in regard to the water supply of East London. Mr. Chaplin: Yes, sir, I am glad to say that I have received a telegram informing me that the two companies have come to an arrangement by which the New River Company will be able to provide the East London Company with an additional supply of three million gallons daily.

PERMANENT WAY INSTITUTION.—On the 24th ult. the annual summer meeting of the Permanent Way Institution was held in Newcastle, in the lecture theatre of the Literary and Philosophical Society. Mr. S. L. Murgatroyd, A.M.Inst C.E. (Retford), is President of the Society, Mr. J. H. Pinder being Vice-President, Mr. W. Hirst, Treasurer, and Mr. J. J. Lomax (Stoneclough) Secretary. Mr. Murgatroyd took the chair.—Mr. Hirst presented the financial statement, which showed a balance, after payment of accounts, of 80*l.*—The President reported that as the result of negotiations with the Board of Trade, that body had agreed to present to the Institution one copy of every report made by a Board of Trade Inspector of accidents upon the railways in the United Kingdom.—It was agreed, on the recommendation of the Council, that the nomination of a President for 1897 be left to Mr. Murgatroyd, to report to the next meeting, the selection to be made from the patrons of the Institution. Mr. Arthur Pugh (Nottingham) was elected Vice-President for 1897. The annual winter meeting was announced to be held in London on January 30, 1897.—The President addressed a few words to the members, and said a man who was to take a responsible position on a railway must be something more than a workman. He must begin with a certain scholastic training, and then must keep himself informed and up-to-date with everything that takes place in his special sphere. That was one of the benefits the Institution offered to its members. The membership of the Institution had, in its thirteen years' existence, gradually increased, and that day they had more members than ever before. He advocated a greater and more active interest in the discussions at the sectional meetings of the Institution. —This concluded the business of the meeting. In the evening the annual dinner of the Institution was held at the Hotel Metropole, Clayton-street West, Newcastle. The following day was devoted to excursions. A visit was made to the N.E. Railway Locomotive Works and Permanent Way Workshops, Gateshead, by permission of Mr. Wilson Worsdell and Mr. C. A. Harrison.

THE SANITARY INSTITUTE —At an Examination for Inspectors of Nuisances, held at Leeds on Friday and Saturday, July 24th and 25th, the following forty-six candidates were certified, as regards their sanitary knowledge, competent to discharge the duties of Inspectors of Nuisances:—T. Bannister, Halifax; T. Bent, Leicester; E. H. Bond, Liverpool; W. Bould, Burslem; S. Brookshaw, Manchester; R. E. Bull, Birmingham; J. A. K. Cooper, Manchester; T. H. Craghill, Shrewsbury; J. W. Crostan, Manchester; J. E. H. de Key, Old Hill, Staffordshire; F. Dixon, Hull; J. W. Douglas, Alnwick; A. E. Drummond, York; J. H. Edwards, Wrexham; J. Ellis, Leeds; G. Gout, Cleethorpes; J. W. Harrison, Bradford; Miss H. Hastings, Newcastle-upon-Tyne; F. W. Hayes, Malvern; D. Hinchcliffe, Pudsey; E. Hobson, Sheffield; G. E. Hopper, Whitby; F. Jenkinson, Huddersfield; G. F. Marshall, Hull; H. R. Monson, Hull; D. Oakley, Crook, *via* Darlington; A. J. Oldham, Newcastle-upon-Tyne; H. Parker, Buxton; E. S. Pighills, Liverpool; A. Rayner, Stockport; W. Reid, Carlisle; J. M. Scorrer, Hull; F. S. Sharp, Leeds; J. Smith, Manchester; W. J. Smith, Market Harborough; J. W. Thackray, Leeds; W. Thorpe, Manchester; T. Townend, Manchester; J. J. Tyrer, Liverpool; G. Wade, Hull; W. Ward, Snildon, *via* Darlington; G. W. Westgarth, Co. Durham; A. E. Wilcockson, Middleton Junction; H. Wildig, Chester; H. Wilkinson, Nelson, Lancashire; G. Williams, Rock Ferry, Cheshire.

EXTENSION OF THE ELECTRIC LIGHT, BRISTOL. —Colonel Marsh, R.E., one of the Local Government Board Inspectors, attended at the Council-house, Bristol, on the 29th ult., to inquire into the application of the Bristol Corporation to borrow 75,000*l.* for electric-lighting purposes. The Town Clerk (Mr. Travers Burges) said the purpose for which the loan was required was for the extension of the existing central station, increasing the plant, and laying distributing mains to parts of the city at present not supplied with the electric light, but which were within the area covered by the Bristol Electric Light Order, and in which ratepayers were entitled to demand a supply. Three loans had already been raised. The extension now proposed to parts of Clifton, Redland, Cotham, and Stapleton-road they hoped would prove profitable. Mr. Williams gave the Inspector details of the new buildings, and Mr. Proctor of the machinery and plant. The Inspector subsequently viewed the site of the existing buildings.

ARBITRATION CASE.—Mr. D. Watney, President of the Surveyors' Institution, who acted as arbitrator in the claim for compensation brought by the East and West India Dock Company against the Orsett Rural District Council for land required for the purposes of an easement near the docks at Tilbury, has issued his award at 457*l.* 10s. The original claim, based on the value of the land for agricultural use, was about 300*l.*, but this was afterwards raised to 1,179*l.* in view of the special value of the property to the dock company for the purpose of extending their works.

THE GLASGOW SCHOOL OF ART.—NATIONAL COMPETITION AWARDS. — The successes of the students of this school in the national competition among the whole of the Schools of Art of the United Kingdom have this year been very marked. Fifty-three national awards have been obtained, being an increase of ten on the number won last year. These awards comprise the gold medal, five silver medals, eleven bronze medals, eighteen national book prizes, and eighteen prizes for sets of works. The gold medal is for architectural design, the architectural department also taking one silver medal, five bronze medals, five national books, and six prizes for sets of works. For life studies, drawn and painted—One silver medal, one bronze medal, five national books, and two prizes for sets of works. For design as applied to manufactures — One silver medal, four bronze medals, five national books, and seven prizes for sets of works. For painting still life and from the cast—One silver medal, one bronze medal, two national books, and two prizes for sets of works. For modelling the figure — One silver medal, one national book, and one prize for set of works.—*Glasgow Herald.*

NEW CLOCK, TRAINING COLLEGE, CHELTENHAM.—A large turret clock has just been erected in the college tower as a memorial to the late Principal. It strikes the hours, shows time on two dials, and is fitted with all the latest improvements. The work has been carried out by Messrs. John Smith & Sons, of Derby.

DISCOVERY OF A RUNE-INSCRIBED CROSS AT THURSO. — A discovery was recently made at Thurso, in Caithness, which extends the area of the Rune-inscribed monuments of the Northmen to the northern mainland of Scotland. Hitherto the known range of these monuments has, says the *Scotsman*, been confined to the Northern and Western Isles, examples occurring at Crosskirk and Cunningsburgh, in Shetland; at Kilbar, in the Island of Barra; and at Inchmarnock, in Bute; and Runic inscriptions not of a sepulchral character are also known at Maeshowe, in Orkney, and in the King's Cove at Arran. As the Norse language and its Runic alphabet must have been as well known in Caithness as in the Isles of Orkney and Shetland, it was to be expected that sooner or later such inscriptions would be found there; but notwithstanding the numerous excavations that have been made among the Caithness brochs and burial cairns, no scrap of Runic writing has previously turned up, excepting a somewhat doubtful, or at least illegible, inscription scratched on a small round stone, which was found by Mr. Barry, M.P., in one of the brochs at Keiss. The Thurso cross is roughly cut from a Caithness flag-stone; the sides only show the marks of the tool, and the faces are left with the naturally smooth surface. A part of the bottom of the shaft is wanting, as is also a small part of the summit. What is left is 2 ft. 8½ in. in length by 6 in. in breadth, and little more than 1⅛ in. in thickness. The shaft tapers slightly to its junction with the arms of the cross, which have only a slight projection. A small cross is incised in the centre of the cross-head. The cross was discovered on a site close to the ruins of the old Church of St. Peter.

MEMORIAL BUST OF DR. ARNOLD.—On the 15th ult. the Dean of Westminster unveiled a bust, in Westminster Abbey, by Mr. Alfred Gilbert, R.A., of Thomas Arnold, of Rugby. The bust is at the south-west corner of the nave, anciently the Bap-

tistry and once the Consistory Court, and it is opposite that of the great head-master's son, Matthew Arnold, and in the company of those of Wordsworth, Keble, Frederick Denison, Maurice, and Fawcett.

PROPOSED ART CLUB IN CHESTER. — The Grosvenor Museum-buildings in Chester being now completed, it is proposed that the increased accommodation be utilised for the promotion and advancement of art locally, and the formation of an art club for the city. A meeting for the purpose of considering the subject was held at the museum recently. Mr. E. J. Bailie, Secretary of the Museum Committee, explained the scope and nature of the project, and read a letter from his Grace the Duke of Westminster, in reply to a request that he should become President of the club, stating that he had no doubt that an association such as proposed would prove of use in furthering and encouraging art in the city by arranging for methodical exhibitions of different branches of art, and if such a club were formed he should have pleasure in becoming its President. A resolution that an art club be formed was carried on the proposition of Dr. Stolterfoth, seconded by Mr. A. Lamont, sen.

CAPITAL AND LABOUR.

THE BUILDING TRADE AT REIGATE.—A meeting of men engaged in the building trade was recently held at the Temperance Hall, Bell-street, Reigate. Mr. Councillor Gilbert occupied the chair. The object of the meeting was to take into consideration the general position of the men engaged in the several branches of the trade in the district. There were about 200 present. It was eventually decided that in the interests of all branches of the building trades the employers should be approached in reference to an increase of wages and a code of working rules for the district. It was also decided that a committee be formed, composed of men representing each trade, for the purpose of drawing up a code of working rules, with the amount of increase of wages to be asked for, and the same to be submitted to a public meeting of the trades to be called for the purpose. A representative committee, with power to add to its number, was then appointed.

THE JOINERS' STRIKE AT THE HARTLEPOOLS. —The protracted strike of joiners at the Hartlepools, which has put a stop to all local building operations, has been settled by a compromise. The men asked 9d. per hour, but the masters now offer 8¾d., with arbitration respecting the other farthing. This the men have accepted. The sawmill joiners are not affected by the settlement.

STRIKE OF NOTTINGHAM PLUMBERS. — The plumbers of Nottingham have struck for an advance in wages of 1d. per hour, and for a reduction in working hours. The present rate of wages is 8½d. per hour, with fifty-four hours a week. The men assert that they are actuated by a desire to secure employment for members who are idle, as by reducing the hours to fifty hours per week thirteen members would be engaged where twelve were previously. At a recent meeting of the members of the local branch of the Operative Plumbers' Society a recommendation was submitted from the Executive Committee to allow members to work for employers paying the advance, viz., 9½d. per hour, but to work under the old by-laws pending a final settlement. It was reported that there was a large number of employers who were not members of the Master Plumbers' Association. In the course of a discussion it was pointed out that all the other branches of the building trade had received advances and better conditions of labour. The recommendation of the committee was accepted. A letter was read from the Master Plumbers' Association stating that at a largely-attended meeting of employers they, as a body, did not see any reason why wages should be advanced, considering the state of trade in Nottingham at present, which shows no signs of improvement. —At a meeting of the Master Plumbers' Association the question of an increase of wages was discussed at considerable length, and eventually the meeting decided to adhere to a former resolution not to accede to the demand. It was argued that the scale of payment which has hitherto obtained is as liberal as that of any other plumbers in the kingdom. Moreover, it was contended that the present state of the trade in Nottingham is not such as would warrant an advance of wages of 12½ per cent. It was ascertained that at the present time, although some 130 or 140 men are on strike, the employers are in a position to cope with all the work they have on hand, and also to complete any further orders that may be entrusted to them.

THE DUBLIN BUILDING TRADES DISPUTE.— A mass meeting of the carpenters was held on Sunday at the Mechanics' Institute, Dublin, for the purpose of receiving the report of the committee of their body who met the masters on Saturday. Mr. Clarke, chairman of the strike committee, presided. The settlement effected with the masters was approved by the meeting. The new rules are as follows:—(I.) That all carpenters and joiners be paid by the hour. (II.) Working hours in builders' shops, or where artificial light is provided, to be as follows: Five days from 6.30 a.m. to 5.30 p.m. One day (Saturday), 6.30 a.m. to 1.45 p.m. Total, 54 hours. Time for meals in factories and workshops as above 1½ hours per day for five days all the year round. Saturdays, ¾ hour. At outside work, and where artificial light is not provided—

PERIOD OF THE YEAR.	Hours on Five Days of the week. a.m.	Hours on Five Days of the week. p.m	Hours on Saturdays. a.m	Hours on Saturdays. p.m.	Total Hours
From Feb. 15 to Nov. 15	6 30 to	5 30	6 30 to	1 45	54
,, Nov. 16 to Nov. 30	7 0 to	4 45	7 0 to	1 45	†49½
,, Dec. 1 to Jan. 15	7 30 to	4 30	7 30 to	1 45	†45½
,, Jan. 16 to Jan. 31	7 15 to	5 0	7 15 to	1 45	†49½
,, Feb. 1 to Feb. 14	7 0 to	5 15	7 0 to	1 45	†52½

† Artificial light will be provided wherever it reasonably can.

Time for meals in outside work as above:—Breakfast time all year round, 8 30 a.m. to 9.15 a.m. Dinner-time from February 15 to November 15, 2 p.m. to 2.45 p.m. Dinner-time from November 16 to February 14, 2 p.m. to 2.15 p.m. (III.) In factories where joinery is produced the hours may be arranged between employer and the members of the trade, the full week's work to be fifty-four hours. (IV.) The rate of wages for competent carpenters and joiners to be 8d. a working hour, and for outside men during the shortened hours, 8½d. Aged workmen to be paid as provided for in section 2, rule 40. Overtime: From 5.30 p.m. to 11.30 p.m., 9d. per hour. From midnight to 6 a.m., 1s. 3d. per hour. Where relays of men are necessary, 10d. per hour. Overtime not to count until fifty-four hours have been worked, if time is lost by default of workmen. (V.) Carpenters and joiners employed by all private firms, such as breweries, distilleries, religious and industrial institutions, or engaged by professional or private gentlemen, merchants, &c., shall be paid one-halfpenny per hour over the standard rate paid by the master builders. (VI.) All men working within a mile of the present city boundary shall work the city hours as above; outside the mile limit, and within four miles of said city boundary, walking time at the rate of three miles an hour to be allowed for going from and returning to the mile limit, provided the employer does not provide other means of locomotion. All men sent to work outside the four mile limit, in the event of no other arrangement being made by the employer, shall be allowed 8d. per day lodging money for each day worked. Train fare and travelling time when going to and returning from the job to be allowed, provided that the workman is not discharged for misconduct or is leaving the job of his own free will. In either of the latter instances train fare or other expenses for returning shall not be allowed. It is to be distinctly understood that the foregoing arrangements for country money, &c., are only to apply to men living in the city, and employed and sent to country jobs. In no case will other rates than those current in the district be paid to local men. (VII.) All wages to be paid weekly. (VIII) Every employer shall be at liberty to employ tradesmen from any recognised Society of Carpenters and Joiners in the United Kingdom, and no objection shall be raised by the Amalgamated Carpenters to working with the members of other societies. (IX.) The Master Builders are to get every advantage given by the members of the society to others not members of the Master Builders' Association, and where work is done by measurement or agreement for such persons Master Builders to have the right to claim a similar advantage. (X.) Every employer shall conduct his business in any way he may consider advantageous in all details of management not infringing the individual liberty of the workmen or these rules. (XI.) Every apprentice bound to a carpenter or joiner member of the trade shall have attained his fifteenth year before being bound, and shall serve six years, and his wages shall be as follows:—Second half of first year, 1d. per hour; second year, 1½d. per hour; third year, 2½d. per hour; fourth year, 3d. per hour; fifth year, 4d. per hour; sixth year, 5d. per hour. (XII.) That in the event of any dispute arising between the Master Builders Association and the Amalgamated Society of Carpenters, three members shall be nominated by the Master Builders and three by the Amalgamated Society, who will interpret these rules and settle disputes (when necessary an umpire, mutually agreed upon, may be appointed). All decisions come to shall be binding on both parties. (XIII.) Three months' notice to be given by either party to the other before any change be made either in the rate of wages or hours of work. Such notice to be given only so as to expire on May 1. (XIV.) That no other rules will be binding on either party except those which have been agreed to and signed on behalf of each party.

LEGAL.

STRANGE BUILDING PROSECUTION:

APPLICATION TO A DIVISIONAL COURT.

MR. MACMORRAN, Q.C., on Tuesday last moved a Divisional Court of Queen's Bench, composed of Mr. Baron Pollock and Mr. Justice Grantham, on behalf of Mr. Evan Spicer and others for a rule *nisi* calling upon the Justices of Quarter Sessions of the county of Kent to show cause why a certain indictment should not be removed into the Queen's Bench Division. The indictment was for obstructing a highway, and a true bill was found by the grand jury at the last Maidstone Quarter Sessions. Eighteen names were mentioned in the indictment, and, besides Mr. Spicer, they included the principal librarian of the British Museum and the Vicar of St. Botolph's. Fifteen of these gentlemen were, and three had been, members of the governing body of a charity called the Bishopsgate Foundation, which was administered under a scheme framed by the Charity Commissioners. The Foundation had some property at Sevenoaks, and in 1878 they laid out an estate of building, and among other things they laid out a road which was marked "private" at both ends, and which had been stopped up by a fence, which, however, had been removed. Negotiations had been going on for the taking over of this road by the Local Authority, and they continued till June this year, when, to the surprise of everybody, the defendants were indicted for obstructing the road. The learned counsel said that if the trial were not removed all those gentlemen would have to go down to Maidstone to plead.

Their lordships granted a rule *nisi*.

THE REMOVAL OF A LONDON HOSPITAL:

CASE IN THE CHANCERY DIVISION.

THE case of Griffiths *v.* Whitting on Tuesday last came before Mr. Justice Kekewich in the Chancery Division, it being an application by way of originating summons by the plaintiffs, the executive committee of the Small-pox and Vaccination Hospital, Highgate, for an order of the Court directing that the defendants, the trustees in whom the real and personal estate of the Institution was vested, might be at liberty to carry out a proposed sale of the present site and buildings to the Guardians of the Poor of the Parish of St. Mary, Islington, in which parish the hospital is situated. The hospital was founded in the year 1746 by a few private persons in Mortimer-street, and thence it was removed to Bethnal Green, next to Clerkenwell, and then to Coldbath Fields. In 1767 a field of about four acres in the neighbourhood of Gray's Inn was purchased for 840*l.*, and there the hospital was carried on till 1845, when the Great Northern Railway acquired the site for its terminus. In 1848 some eight acres, comprising the land now in question, were purchased at Highgate, and the hospital was removed to it. The money for these changes was provided by the sales, as houses encroached on the different sites, and also by 8,000*l.*, supplementing private donations, legacies, and yearly subscriptions, from the sale of land at Battle Bridge. All these sales had been effected under the powers of a deed-poll and the rules of the Institution vesting its administration in the hands of governors and of a committee. The hospital was now surrounded by houses, and the Vestry of St. Mary had made an offer to purchase the site and land at what the governing body thought the satisfactory price of 52,500*l.* A resolution had been duly passed in favour of accepting this offer, and the present application was made largely to satisfy one of the trustees, in whom, by the sales, the property of the hospital, real and personal, was vested, and who did not like to undertake the responsibility of selling without getting the authority, or an expression of opinion on the part of the court that the sale was desirable.

His Lordship made the order asked for.

Mr. Renshaw, Q.C., and Mr. Methold appeared as counsel for the plaintiffs; and Mr. Bramwell Davis, Q.C., and Mr. P. S. Gregory for the defendants.

LITIGATION AS TO GLASS-FACED BRICKS:

IMPORTANT ACTION IN THE QUEEN'S BENCH DIVISION.

THE case of the National Opalite Glazed Brick and Tile Syndicate, Limited, *v.* the Ceralite Syndicate, Limited, came before Mr. Justice Grantham sitting without a jury on Tuesday and Wednesday last. The plaintiffs, who carry on business in Manchester, are the legal owners of letters patent No. 13,583 of the year 1892, granted to Carl Lewy for an invention of "an improved method of and means for securing glass plates to walls, ceilings, and the like, and of letters patent No. 12,472 of the year 1893 granted to Anthony Shelmerdine for an invention of improvement or improvements in connexion with fancy ornamental bricks, tiles, slabs, wallings, ceilings, and the like," and they claimed an injunction to restrain the defendants, who carry on business at 5, the Sanctuary, Westminster, their servants and agents, from manufacturing, selling, or offering for sale, using, or in any other manner dealing with any glass-faced bricks or glass wall-facing called by the defendants ceralite patent glass-faced bricks and ceralite wall-facing, or from in any other manner infringing the plaintiffs' patents. There was also a claim for damages.

The defendants, besides denying that they had

CONTRACTS AND PUBLIC APPOINTMENTS.

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
*Croft Pavement	Thame U.D.C.	J. Towers, Thame	Aug. 11
Street Works	Burnley Corporation	G. H. Pickles	do.
Waterworks, Raphoe, Ireland	Strabane Union	J. E. Sharkie, Poor Law Offices, Strabane	do.
*Road Making and Paving	Willesden D.C.	C. C. Robson, Dyne-road, Kilburn, N.W.	do.
Warehouse, &c. Halesworth, Suffolk	C. Gooch	Chas. Gooch, Chedistonstreet, Halesworth	do.
Shops, Club, &c. Otley-road, Bradford	.....	F. Wild, Archt. 7, Charlesstreet	do.
Sale Shop, House, &c. Ferham-street, Masbro', near Rotherham	.....	J. Axleby, Archt. 89, Wilton-lane, Masbro'	Aug. 12
Bridge	Pottespury (Northants) R.D.C.	H. A. Endsor, Surv. Yardley Gobion	do.
Levelling and Paving, Crawley-road, &c.	Wallsend U.D C	G. Hollings, Surv. Highstreet, Wallsend	do.
Main Sewers, &c.	Melton Mowbray U.D.C.	E. Jeeves, Surv. Nottingham-street	do.
Sewage Disposal Works, Stargate	Ryton U.D.C.	J. P. Dalton, Engr. Council Offices	do.
*New Infirmary	Halifax Union	Horsfall & Williams, George-st. Halifax	Aug. 13
Additions to Warehouses, &c. Fitzwilliam-street, Huddersfield	Messrs. Bairstow	J. Kirk & Sons, Archt. Huddersfield	do.
Brick and Pipe Sewers	Leicester Corporation	E. G. Mawbey, Engr. Town Hall	do.
Broken Granite (1,000 tons)	Hitchin U.D.C.	W. O. Times, Council Offices	do.
Sewerage Works, Eggleston	Barnard Castle R.D.C.	F. H. Livesey, 1Archt. Market-pl. Bishop Auckland	Aug 14
Two Houses and Shop, Saville-road, Castleford, Yorks	T. Doncaster	J. A. Clokie, Archt. The Potteries, Castleford	do.
Culvert, Moor Bridge-lane	Stapleford R.D.C.	F. R. Hawley, Surv. Woodstreet. Ilkeston	do.
Six Miles Cast-iron Water Mains	Brighton T.C.	F. J. Tillstone, Town Hall	Aug. 15
*Cast-iron Water Mains	Bilston U.D.C.	Baldwin Latham, 13, Victoria-street, S.W.	do.
Sewage Outfall Works	Campbelltown (N.B.) Corp.	Warren & Stuart, C.E. 115, Wellington-st. Glasgow	do.
Granite Road Metal	Haywards Heath U.D.C.	E. Waugh, Council's Offices	do.
Three Cottages, Grosvenor-rd. Great Yarmouth	H. R. Atkins	C. G. Baker, Archt. Town Hall Chambers	do.
Earthenware Pipes, &c.	Chorley (Lancs.) Corp.	Jno. Mills, Town Hall	do.
Rebuilding Public Hall and Institute, Cwmaman, Wales	.....	J. Williams, Cwmneol-inn, Cwmaman	do.
*Six Shops, Church-road, Barnes	.....	F. & W. Stocker, Archt. 90, Queen-street, E.C.	Aug. 17
Pipe Sewers and Drains, Oatlands Estate, Harrogate	.....	Martin & Fenwick, 1, Park-place, Leeds	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
*Iron Emergency Staircase	Kingston Union	W. H. Hope, Union Offices, Portsmouth-road, Kingston-on-Thames	Aug. 17
Independent Chapel, Brynteg, near Longhor, Wales	.....	T. Arnold, C.E. Castle Buildings, Llanelly	Aug. 18
Cottages, Kirkby Lonsdale	.....	J. Kassell, Archt. Kirkby, Lonsdale	do.
*Cemetery Chapels	Bournemouth T. C.	F. W. Lacey, Town Hall	Aug. 19
Road Widening, near Bothel	Cockermouth R.D.C.	J. B. Wilson	Aug. 21
*Public Hall and Parochial Offices	Farnborough U.D.C.	G. Sherrin, 33, Finsbury-circus, E.C.	Aug. 24
*Repairs, Painting, Sanitary Works	South Metropolitan School District	The Clerk at School, Herne Bay, Kent	do.
*New School and Alterations	S. Benfleet S.B.	Nicholson & Corlette, 28, Theobald's-rd. W.C.	Aug. 28
*Pipe Sewers	Hinckley U.D.C.	J. B. Everard, 6, Millstone-lane, Leicester	Aug. 31
*School Buildings	East Ham S.B	R. L. Curtis, 120, London-wall, E.C.	do.
*Cart Shed, Shelter, Office, &c.	Rotherhithe Vestry	N. Scorgie, Lower-road, Rotherhithe, S.E.	do.
Infirmary, &c.	Ipswich Union	Salter & Adams, and W. L. Newcombe, Archt. 28, Woburn-place, W.C.	Sept. 1
Main Drainage Works (Contract No. 3)	Norwich Corp.	A. E. Collins, C.E. Guildhall	Sept. 15
*Underground Conveniences	Com. of Sewers	The Engineer, Guildhall, E.C.	Sept. 29
Semi-detached Villas, Heaton Mount Bradford	.....	H. & E. Marten, 5, Charlesstreet, Bradford	No date

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised	Salary.	Applications to be in.
*Clerical Assistant	London C.C.	2l. 2s. per week	Aug. 17
*Clerk of Works	Kingston Union	3l. 3s. per week	do.
*Resident Engineer	Dundee Harbour Trus.	400l. per annum	Aug. 21
*Mason to act as Instructor	Governor H.M. Prison, Dartmoor	70s. rising to 82s. free quarters, or allowance, uniform, &c.	No date

Those marked with an asterisk (*) are advertised in this Number. *Contracts, pp.* iv., vi., *&* viii. *Public Appointments, pp.* xvi. *&* xix.

infringed the letters patent in question, relied on the following objections as to the validity of those letters patent :—

1. That the alleged inventions claimed thereunder were not new ones at the date of the letters patent respectively, but had been published within this realm prior to the said dates.

2. That the alleged inventions claimed in both the plaintiffs' letters patent were published by the use of glass plates having hard materials attached to the backs thereof at Lusby's Music Hall, formerly situated in the Mile End-road, in the year 1879, and by James William Martin, of 17, Coleman-street, E.C.

3. That the alleged invention claimed in the letters patent 12,472 of 1893 was not a new one at the date thereof.

4. That both the letters patent were invalid for want of subject matter and that no invention was required to affix pieces of hard material to the backs of glass plates or to form a granular backing thereon for the purpose of causing such plates to adhere to a wall, ceiling, slab, or brick, as in the manner claimed.

5. That neither of the inventions were of any utility, and

6. That the letters patent No. 12,472, of 1893, were invalid by reason that the specification thereof contained no sufficient directions for producing a granular back.

Mr. Fletcher Moulton, Q.C., Mr. Bousfield, Q.C., and Mr. Walter were counsel for the plaintiffs ; and Mr. Terrell, Q.C., and Mr. J. C. Graham for the defendants.

His Lordship gave judgment for the plaintiffs, granted an injunction, and directed an inquiry as to damages.

A stay of execution, with view to an appeal, was granted on defendants paying £500 into court.

MEETINGS.

MONDAY, AUGUST 10 TO SATURDAY, AUGUST 15.

Architectural Association.—Annual excursion, Tunbridge Wells and neighbourhood.

FRIDAY, AUGUST 14.

Institution of Junior Engineers.—Summer meeting, Scotland (see "Engineering Societies").

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

14,897.—FRICTION HINGES : *J. Millar.*—This invention is applicable to fanlights, window-sashes, &c., requiring to be reversed and to remain in position. The hinge may be made of any metal and in any size. It consists of a compass-joint with male and female portions. In the centre of the compass-joint a hole is pierced to admit a pin to pass through. One end of this pin has a head, the other a screw nut the breadth and thickness required to screw the female portion of the hinge tight to the male portion, to give the required friction to hold the sash open in a horizontal position.

15,042.—SYPHON WATER-CLOSETS : *S. H. Rowley.*—Consists in a novel construction for purpose of admitting air to the syphon so as to stop the syphonic action before water-level in basin gets below untrapping point. To achieve this the inventor forms in the basin an air passage leading from a point just above the untrapping level to the upper part of the interior of syphon.

15,264.—CONCRETE SLABS : *H. H. Hodkin.*—This is a table with four adjustable slips and lifting keys, &c., for manufacturing concrete into paving slabs of any required thickness.

17,672.—FLOORING CRAMPS : *J. Hampton.*—The inventor here mounts the tubular box in which the cramping bar works on the top of the joist clamp. In a tubular bearing on the top of a tubular case is a vertical axis with a handle at top and a vertical worm at the lower extremity. This latter gears with a worm wheel which actuates the cramping bar.

10,398.—WINDOW BLIND : *S. W. Tomkins.*—The proposed blind is made of stout fibrous paper or other flexible material capable of being pleated or folded like the body of a concertina. This is attached at its upper end to a fixed lath and at its lower end to a movable one. To this latter are connected cords for raising and lowering, which pass over pulleys fixed in the beading.

10,293.—FIRE-BRICKS : *J. G. Henry and Others.*—The inventors mix together in the first instance about equal quantities of lime water and "red liquor" (the latter being the trade term for a certain liquor occurring during the process of manufacturing soda-ash). The mixture is again mixed with about equal proportions of sawdust and cork-dust, in the proportion of about three and a half gallons of mixture to 1 cwt. of the mingled dusts. Then, having properly ground into a fine powder a sufficient quantity of fire-clay and ganister, these are mixed in the proportions of two of the former to one of the latter. About 4 cwt. of these combined clays is then mixed with 1 cwt. of the cork and sawdust mixture, water being added until the compound is of the proper consistence for moulding bricks. These are carefully dried before being kiln-burned in the usual way. The resulting bricks are very light, and extremely heat-resisting.

10,841.—PAVING MATERIAL AND SLABS: *H. Schneider.*—Inventor uses approximately 55 parts of prismatically hewn stones, 7 parts pulverised granite, 13 parts gravel, 18 parts natural asphalte, and 7 parts bitumen. The surface to be paved is first covered with a thin layer of concrete. The asphalte and bitumen are heated in closed vessels for about three hours. Some of the molten preparation is then poured on the concrete, and the comparatively large prismatic stones are passed into this layer while soft, so that their bases nearly touch each other. The spaces between are filled up with more of the boiling liquid, to which the smaller prismatic stones and gravel are now added. In situations where there are subterranean pipes, channels, &c., the inventor uses both his preparations in the form of slabs, and places concrete slabs beneath them. It is claimed that this method provides a hard, impervious, and durable material, the surface of which is always somewhat rough.

NEW APPLICATIONS FOR LETTERS PATENT.

JULY 20.—16,008, H. Harris, Compressed Air and Bowl Apparatus for the Ventilation to Tunnels, Buildings, &c. —15,994, J. Stoney, Fastening and Securing Windows, Doors, Shutters, &c.—16,025, A. Doman, Brackets for Preventing Rain-water Gutters or Spouting from Falling out of Position.—16,030, Siemens Bros. & Co., Limited, Rock Drills.

JULY 21.—16,141, C. Shield, Gates.—16,151, J. Garrett, Earth Closets.—16,178, R. Bush, Preventing the Bursting of Water-pipes by Frost.

JULY 22.—16,184, T. Potter, Wall Battening for Plastered Walls.—16,189, T. Leigh, Casement Stays.—16,235, 16,236, 16,237, J. Sanders and W. Nott, Door Locks.—16,238, J. Sanders and W. Nott, Window Sash Fastener.—16,258, A. Gibbs and Eastwood & Co. Limited, Burning of Bricks, &c.—16,263, J. Winn and F. Jones, Holdfasts for Walls.—16,272, T. Wyatt, Door Lock or Catch.

JULY 23.—16,295, C. Soar, Sanitary Pipes.—16,296, W Stonehewer, Composition Sash Weight.—16,304, R. Clucas, Holders for Upright Sliding Windows, Shutters, Doors, &c.—16,310, W. Miller, The Utilisation of a Waste Product in the Production of a Wall, Ceiling, or other Plaster.

JULY 24.—16,369, L. & L. Holling, Appliances for Erecting Scaffolding, or in the means of securing same.—16,384, E. Parkinson, Flushing Cisterns.—16,436, J. Lenba, Paving Blocks.—16,437, J. Jones, Pipe or Drain Stoppers.

JULY 25.—16,479, M. Adams, Syphon Cisterns.—16,483, J. Shanks and J. MacCormac, Water and other Taps.—16,497, R. Hall, Decorative Marble Window Panes.—16,509, W. Youlten, Fanlights.

PROVISIONAL SPECIFICATIONS ACCEPTED.

11,689, H. Hodgkinson and R. Hall, Door Lock Furniture, &c.—13,155, J. Dormer, Gem Hand-power Brick-making Machine.—13,165, G. Ridout, Window Sashes and Frames.—13,215, C. Foad and C. Gordon, Drain Joints.—14,248, T. Blanchflower, Building Bricks, &c.—14,657, H. Lawson, Portable Houses or Structures.—14,789, T. Sumner, Wall Papers, &c.—14,828, T. Main, Construction and Arrangement of Interlocking Reversible Sectional Paving.—14,913, J. and R. Kershaw, Wood-sawing Machinery.—14,985, W. Cotter, Sash Fasteners.—14,980, J. Havenhand, Attaching Handles to Files.—14,990, H. Foster and A. Beresford, Ventilating Fans.—15,096, J. Pollock, Machinery or Apparatus for Carving Wood, &c.—15,100, J. Jones, Brick-making Machinery.—15,116, W. Munden, Flushing Device for Water-closets, &c.—15,124, A. Mantle, Kitchen Ranges.—15,237, B. Gypson, Attaching Door Knobs to their Spindles.—15,272, W. Thompson, Keyhole Escutcheons, Finger-plates, &c.—15,307, T. Watson, Safeguard for Preventing Accidents caused to those engaged at Work falling from the Outside of Windows, &c.—15,308, E. Roux, Ceiling.—15,345, T. Kemp, Air-tight Cover for Drain Inspection Pipes.—15,578, F. Mann and H. Akers, Door Stops.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

16,880, F. Bates, Stench Trap.—17,220, M. Sibbring, Window-sash Fasteners, &c.—17,853, W. Youlten, Cheeks of Hopper Windows.—17,854, W. Youlten, Hinges.—3,772, H. Lombard, Door Stop.—13,790, E. Marsh, Bead Pieces or Devices for use in Plaster or like Work.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

July 16.—By J. A. & W. THARP.

Whitechapel.—28 and 29, Little Alie-st., beneficial lease, together with goodwill, stock, plant, &c., u.t. 17 yrs., r. 130*l.*	£2,300
Stamford Hill.—32, Cranwich-rd., u.t. 96 yrs., g.r. 8*l.*, r. 45*l.*	455
By ROBINS, SNELL, & GORE.	
Soho.—97, Dean-st., f., r. 125*l.* 14s.	1,340
Blackfriars.—36, Stamford-st., f., r. 84*l.* 10s.	750
By TOPLIS & HARDING (at Paddington).	
Kensal New Town.—2, Hazlewood-cres., u.t. 68 yrs., g.r. 5*l.* 10s., r. 36*l.*	250
July 17.—By A. and A. FIELD.	
Poplar.—Lodore-st., &c., f.g.r. 6*l.*, reversion in 46 yrs.	185
Whitechapel.—9 and 11, Oxford-st., u.t. 14 yrs., g.r. 5*l.*	235
Mile End.—198, Hanbury-st., f., r. 54*l.* 12s.	750
By RUTLEY, SON, & VINE.	
Islington.—Dagmar-ter., "Dagmar House," u.t. 74½ yrs., g.r. 40*l.*	2,300
Kilburn.—61 to 67 (odd), Carlton Vale, u.t. 55 yrs., g.r. 40*l.*, r. 158*l.*	1,025

By T. N. TURNER.

Fulham.—2, 6, 8, and 16, Epirus-rd., u.t. 85 yrs., g.r. 29*l.* 8s. £1,200
90, Burnthwaite-rd., u.t. 83 yrs., g.r. 5*l.* 5s. 215

By T. B. WESTACOTT.

Kentish Town.—28, Malden-rd., u.t. 44 yrs., g.r. 6*l.*, e.r. 42*l.* 325
St. James'.—Cleveland Row, a profit rental of 225*l.*, u.t. 7 yrs. 750

By E. WOOD.

Surbiton.—Arlington-rd., "Pretoria Lodge," f. ... 260
Chiswick.—2 to 12 (even), Upham Park-rd., u.t. 73 yrs., g.r. 33*l.* 15s. 1,315
Kentish Town.—77, Falkland-rd., u.t. 65 yrs., g.r. 8*l.*, r. 38*l.* 310
Tottenham.—46, The Crescent, u.t. 63 yrs., g.r. 5*l.* 155

By DYER, SON, & HILTON (at Blackheath).

Blackheath.—88, St. John's Pk., u.t. 78 yrs., g.r. 8*l.* 10s. 350
35, Vanbrugh Pk., u.t. 18 yrs., g.r. 4*l.* 180
Deptford.—67 and 69, Giffin-st., f., r. 52*l.* 480

By HEPPER & SONS (at Thornton).

Thornton, Yorks.—"Salt Pie Farm," 7a. or. 6p., f. 450

By H. J. AUSTEN & SONS (at Tunbridge Wells).

Burwash, Sussex.—"Bines House," and 14 a. o r. 17 p., c. 650
Enclosures of land, 64 a. 3 r. 7 p., c. 1,055
Mayfield, Sussex.—Enclosures of land, 10 a. o r. 20 p., c. 200

By EGERTON, BREACH, & GALSWORTHY (at Alresford).

Ropley, Hants.—Enclosures of land, 57 a. 3 r. 30 p., c. 1,062
"Budgett's Farm," 92 a. 2 r. 19 p., c. 510
Ropley and Bishop's Sutton, Hants.—Rectorial tithe rent charges of 66*l.* 10s. 4d. per annum .. 804

By WINTERTON & SONS (at Lichfield).

Lichfield, Staffs.—"Wall Hall," and 16 a. 2 r. 24 p., f. 1,760
Enclosures of land, 39 a. o r. 21 p., f. 1,475
Shenstone, Staffs.—Enclosures of land, 20 a. 1 r. 31 p., f. 890
"The Trooper" Inn, f., r. 30*l.* 1,170
Freehold cottage and plot of land 129

July 18.—By C. M. STANFORD (at Colchester).

Great Bentley, Essex.—"The Cottage and Dial Farm," 155 a. 3 r. 25 p., f. 1,175

By MORRIS, SON, & PEARD (at Taunton).

Lydeard St. Lawrence, Somerset. — "Westow Manor Estate," 149 a. 1 r. 16 p., f. 3,700

By Messrs. SPELMAN (at Norwich).

Happisburgh, Norfolk. — "The Manor House Farm" and 75 a. 1 r. 22 p., f. and c..... 1,930

July 20.—By J. and R. KEMP & Co.

Marylebone.—North-st., i.g.r. 60*l.*, u.t. 25½ yrs., g.r. 24*l.* 460

By G. BILLINGS.

Clapton.—42, Cricketfield-rd., u.t. 71 yrs., g.r. 7*l.*, r. 36*l.* 370
Dalston.—64, Pownall-rd., u.t. 47 yrs., g.r. 3*l.* 15s., r. 39*l.* 290
Hackney.—32 and 33, Blackstone-rd., u.t. 51 yrs., g.r. 10*l.* 410
21 and 23, Trelawney-rd , u.t. 65 yrs., g.r. 10*l.* 450

By HARMAN BROS.

Stamford Hill.—17, Townsend-rd., u.t. 82 yrs., g.r. 5*l.* 10s. 165

By W. WHITELEY.

Westbourne Pk.—70, Tavistock-cres., u.t. 67 yrs., g.r. 9*l.* 10s., r. 42*l* 350

By DRIVER & Co. (at Ripon).

Ripon, Yorks.—Enclosures of land, 9 a. 2 r. o p., f. 844
7, 8 and 9, Kirkgate, f., r. 68*l.* 2,025

By C. B. SMITH & HALL (at Fareham).

Fareham, Hants. — "Brook Farm," comprising 88 a. o r. 5 p., f. 5,000

July 21.—By G. E. CLARKE.

Alperton, Middlesex.—Mount Pleasant, f.g.r. 35*l.*, reversion in 33 yrs. 550

By OSBORN & MERCER.

Bradfield Combust, Suffolk. — "The Bradfield Hall Estate," comprising 518 a. 2 r. 24 p., f... 14,000

By WALTON & LEE.

Billington, Beds.—Two enclosures of land, 3 a. 1 r. 12 p., f. 150

By DRIVER & Co,

Caterham, Surrey.—Portley Wood-rd., five building sites, 8 a. 1 r. 38 p., f. 1,080

By BEAN, BURNETT, & ELDRIDGE.

City of London.—71, Bishopsgate-st. Without, f., r. 120*l.* 2,000
Hampton, Middlesex.—1 and 2, Montpelier-villas, c., r. 44*l.* 510
Kensington.—Gloucester-rd., i.g.r. 200*l.*, u.t. 17 yrs., g.r. 100*l.* 1,100

By C. W. DAVIES.

Barnsbury.—18, Gibson-sq., u.t. 31 yrs., g.r. 9*l.*, r. 46*l.* 325
Highbury.—1, Madras-pl., u.t. 48 yrs., g.r. 6*l.*, r. 38*l.* 340
Barnsbury.—4, Everilda-st., u.t. 44 yrs., g.r. 5*l.* 5s. 225
Highbury.—192, Drayton Pk., u.t. 80 yrs., g.r. 7*l.*, r. 30*l.* 250
Caledonian-rd.—22, Nailour-st., u.t. 55 yrs., g.r. 5*l.* 10s. 225
Tottenham.—53, Asplin-rd., f., r. 26*l.* 10s. 325
Clerkenwell.—17, 19, 21, and 23, Clerkenwell-rd., and 102, 104, and 106, St. John-st., u.t. 60 yrs., g.r. 300*l.*, r. 520*l.* 1,950
Finchley.—1 to 4, Prospect Cottages, u.t. 29 yrs., g.r. 30*l.*, r. 91*l.* 310
Hornsey.—53, Fairfax-rd., u.t. 92 yrs. g.r. 4*l.* 10s., r. 26*l.* 245

By FLOOD & SONS.

Bayswater.—33, Artesian-rd., u.t. 50 yrs., g.r. 10*l.* e.r. 60*l.* 440
18, Westbourne-pk.-rd., u.t. 447 yrs., g.r. 9*l.* ... 700
6, Sutherland-pl., u.t. 50 yrs., g.r. 12*l.*, e.r. 50*l.* 365

By DEBENHAM, TEWSON, & Co.

Paddington.—Praed-st., a ground rent of 25*l.*, part freehold and part u.t. 25 grs. 1,750
Praed-st.—F.g.r. 52*l.* 10s., reversion in 25 yrs.... 9,425
Praed-st.—"The Load of Hay" public-house, f.g.r. 32*l.*, reversion in 25 yrs..... 22,300
Lyme Regis, Dorset.—"The Grove," and 4 a. 2 r. 3 p., f. 2,500

By THOMPSON, RIPPON, & Co. (at Bideford).

Sutcombe, Devon.—"Northcott Farm," 230 a. 3 r. 33 p., f. 2,880

By T. BANNISTER (at Hayward's Heath).

Balcombe, Sussex.—"Whitehouse Farm," 135 a. o r. 24 p., f. 1,310
An enclosure of land, 1 a. o r. 11 p., f. £100
"Yew Tree Cottage, f., r. 9*l.* 2s. 180

July 22.—By HANCOCK, HENLEY, & SLADE.

Kensington.—50, Courtfield-gardens, u.t. 75 yrs., g.r. 37*l.* 10s. 2,400

By GREEN & SON (of Hammersmith).

Fulham.—43, 45, 47, and 49, Protheroe-rd., u.t. 85 yrs., g.r. 20*l.* 770
Barnes.—1 to 6, Luff's Cottages, c., r. 81*l.* 18s..... 310
Hammersmith.—Mansion House-st., a plot of land, f. 130

By F. LONG & SON.

Clapham.—35, Lynette-av., u.t. 88¾ yrs., g.r. 7*l.* 7s., e.r. 40*l.* 310
Enfield.—Turkey-st., five copyhold cottages, r. 56*l.* 4s. 450

By RUSHWORTH & STEVENS.

Chelsea.—Fernshaw-rd., i.g.r. 84*l.*, u.t. 64¾ yrs., g.r. 20*l.* 1,200
Edith-grove, &c., i.g.r. 41*l.*, u.t. 64½ yrs., g.r. 30*l.* 182
13, Fernshaw-rd., u.t. 64½ yrs., g.r. 30*l.*, r. 90*l.*... 550
29, Fernshaw-rd., u.t. 64½ yrs., g.r. 10*l.*, r. 35*l.*... 240
Limehouse.—8, Cayley-st., c., r. 24*l.* 14s. 255

By HAROLD GRIFFIN.

Battersea.—176, 178, 180, and 182, Bridge-rd., f., r. 102*l.* 4s..... 1,255
184, Bridge-rd., and 2, Surrey-lane, f., r. 47*l.* 6s. 900

By E. & S. SMITH.

Southwark.—1 to 13, and 36 to 44, Westcott-st.; 27 to 32, and 52 to 58, Lansdowne-pl., u.t. 23 to 25 yrs., g.r. 151*l.* 1,750
43, Westcott-st., u.t. 25 yrs., g.r. 5*l.* 170
Westbourne Pk.—57, Southam-st., u.t. 69 yrs., g.r. 8*l.* 200
Paddington. — 2, Manor-pl., u.t. 67 yrs., g.r. 15*l.* 15s., e.r. 60*l.* 450

By WAGSTAFF & WARMAN.

Camden Town.—James-st., f.g.r. 64*l.*, reversion in 53 yrs. 2,130
James-st., f.g.r. 150*l.*, reversion in 47 yrs. 4,250
Oval-rd., f.g.r. 100*l.*, reversion in 53 yrs. 3,750
Kentish Town.—Malden-rd., f.g.r. 32*l.*, reversion in 48 yrs. 1,011
Malden-rd., f.g.r. 68*l.*, reversion in 53 yrs..... 2,166
Notting Hill.—Clarendon-rd., f.g.r. 40*l.*, reversion in 56 yrs. 1,030
Portland-rd., f.g.r. 80*l.*, reversion in 56 yrs. 2,025
Camden Town.—55 and 85, James-st., f., r. 106*l.*... 1,505
41, Gloucester-cres., f., r. 60*l.* 800

By BEAUMONT & GLOVER (at Wakefield).

Wakefield, Yorks.—Alverthorpe High-rd., three building sites, area 14,957 yds., c. 1,496
Enclosure of land, 27 a. 1 r. 17 p., f. and c. 1,215
Wrenthorpe, enclosures, 13 a. 1 r. 23 p., f. and c. 825
"Broor Hall Farm," 90 a. o r. 10 p., f. and c. ... 3,600

By DICKINSON & RIGGALL (at Lough).

Covenham St. Bartholomew, Lincs. — Freehold farm house and 106 a. 2 r. 13 p..... 2,200

By FRANKLIN & SON (at Braintree).

Thaxted, Essex.—"Blunt's Farm," 203 a. 1 r. 1 p., f. 1,310

July 23.—By DEBENHAM, TEWSON & Co.

Hitchin, Herts. — Tilehouse-st., "Lewesford House," and 4 a. o r. 6 p., f. 2,100
Tilehouse-st., "Elm Lodge," and 0 a. 1 r. 2 p., f. 940

By BEADEL, WOOD & Co.

Corringham, Essex.—Enclosures of land, with buildings thereon, 176 a. 1 r. 25 p., f. 1,600

By F. J. BISLEY & SONS.

Bermondsey.—70, Southwark-pk.-rd., u.t. 39 yrs., g.r. 7*l.* 10s., r. 65*l.* 695
Wandsworth.—48, Santos-rd., u.t. 87 yrs., g.r. 6*l.* 10s., r. 30*l.* 305
Peckham.—Surrey-rd., "Vine Cottage," f., r. 15*l.* 12s. 133
Bermondsey.—1 to 5, James-pl., f., r. 92*l.* 6s. 480
227, Jamaica-rd., f., r. 52*l.* 1,000
Rotherhithe.—75 and 77, Chilton-st., u.t. 38 yrs. g.r. 5*l.* 400
Deptford.—327, Lower-rd., u.t. 68½ yrs., g.r. 3*l.* ... 350

By H. J. BLISS & SONS.

Bethnal Green.—17, 19, and 21, Bacon-st., u.t. 49½ yrs., g.r. 10*l.* 620
Homerton.—38, 40, and 45, College-st., f., r. 62*l.* 8s. 610
Hackney.—14 and 16, St. Peter's-st., u.t. 12 yrs., g.r. 7*l.* 175

By NEWBON & Co.

Islington.—Upper-st., "The Royal Mail" Tavern, a freehold rental of 140*l.* for 62 yrs. 4,675
139, Upper-st., f., r. 200*l.* 5,550
Gray's Inn.—19, John-st., f., r. 170*l.* 1,710

By A. J. SHEFFIELD.

Poplar.—44, 46, and 48, Brabazon-st., u.t. 66 yrs., g.r. 9*l.* 415
21, 22, and 23, Grove-villas, u.t. 46 yrs., g.r. 13*l.* 10s..... 510
2, Byron-sq., f., r. 29*l.* 18s..... 360
3, St. Leonard's-av., f., r. 20*l.* 16s. 195

By W. STEVENS.

Dalston.—64, Montagu-rd., u.t. 64½ yrs., g.r. 6*l.* 5s., r. 36*l.* 360
Holloway.—23, Corbyn-st., u.t. 74½ yrs., g.r. 5*l.* 10s. 200
De Beauvoir Town.—90 to 104 (even), Hertford-rd., u.t. 22½ yrs., g.r. 45*l.*, r. 113*l.* 2s..... 400

By STIMSON & SONS.

Tottenham.—121 to 127 (odd), Beaconsfield-rd., and 1 to 5 and 7 to 11, Pelham-rd., u.t. 80 yrs., g.r. 84*l.* 2,200
Old Kent-rd.—Ormside-st., &c., i.g.r. 138*l.* 10s., u.t. 15 yrs., g.r. 60*l.* 880
Tustin-st., &c., i.g.r. 70*l.*, u.t. 15 yrs, g.r. 30*l.*... 365
31, 33, 35 and 37, Ormside-st., u.t. 15 yrs. g.r. 21*l.* 430
Lambeth.—39, Goda-st., f., r. 26*l.* 275
South Lambeth.—21, Guildford-rd., u.t. 46 yrs., g.r. 6*l.* 10s., r. 42*l.*..... 340
Peckham.—1 and 2, St. George's-st., u.t. 52½ yrs., g.r. 8*l.* 8s..... 340
Kensington.—164 and 164a, North End-rd., f., r. 160*l.* 2,100
14, 16, 18, 20 and 22, Star-rd., f., r. 200*l.* 4s..... 2,020

By D. WATNEY & SONS.

Wood Green.—2, 3 and 4, Cherson-ter., f., r. 90*l.* 1,200

By FAREBROTHER, ELLIS, CLARK & Co.

Soho.—46, Dean-st., and 41, Old Compton-st. f., r. 260*l.* 4,000
City of London.—20, Whitefriars-st., f., r. 300*l.* .. 4,000
9 and 10, St. Bride's-av., f., r. 275*l.* 5,225
81, Aldersgate-st., f., r. 200*l.* 5,120
38, Bartholomew Close, f., r. 55*l.* 1,050
West Smithfield.—6, 7, 8 and 9, Middle-st., and 24 to 26, Newbury-st., f. 7,300

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent, r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	8/0/0 0/0/0
Teak, E.I.	load	11/0/0 16/0/0
Sequoia, U.S.ft.cu		2/0 2/1
Ash, Canada load		2/15/0 4/0/0
Birch, do.		3/5/0 5/0/0
Elm, do.		3/10/0 4/15/0
Fir, Dantsic, &c..		1/15/0 3/15/0
Oak, do.		2/10/0 3/10/0
Canada		5/10/0 7/0/0
Pine, Canada red		0/0/0 0/0/0
Do. Yellow		3/5/0 4/10/0
Lath, Dantsic, fath		4/10/0 5/10/0
St. Petersburg..		5/0/0 6/10/0
Wainscot, Riga &c., log...		2/10/0 4/15/0
Odessa, crown....		2/10/0 4/15/0
Deals, Finland snd & 1st std	100	7/10/0 9/0/0
Do. 4th & 3rd ..		7/10/0 8/10/0
Do. Riga		7/10/0 8/10/0
St. Petersburg, 1st yellow....		10/10/0 13/0/0
Do. 2nd yellow		8/10/0 10/10/0
Do. white		9/0/0 10/10/0
Swedish		7/10/0 16/0/0
White Sea		8/10/0 15/10/0
Canada, Pine 1st		23/5/0 23/10/0
Do. do. 2nd		16/0/0 17/0/0
Do. do. 3rd, &c.		8/10/0 10/15/0
Do. Spruce, 1st.		9/0/0 10/10/0
Do. do. 3rd and 2nd		7/10/0 8/10/0
New Brunswick		7/0/0 8/0/0
Battens, all kinds		5/0/0 20/0/0
Flooring boards, sq., 1 in. prep. 1st.		0/9/6 0/14/6
Do. 2nd		0/6/0 0/11/6
Other qualities—		0/5/0 0/6/6
Cedar, Cuba, .ft.		/4½ /5
Honduras, &c.		/4 /5
Mahogany, Cuba		/4½ /6
St. Domingo cargo av.		/4½ 1/3
Mexican, do. do.		/4 /5
Tobasco, do. do.		/5 /7
Honduras, do. ..		/5 /6½
Box, Turkey	ton	4/0/0 15/0/0
Rose, Rio		7/0/0 16/0/0
Bahia		6/0/0 15/0/0
Satin, St. Doming		0/0/7 0/1/0

TIMBER *(continued).*		
Satin, Porto Rico		0/0/7 0/1/6
Walnut, Italian ..		0/0/3 0/0/7
METALS.		
Iron—Pig, in Scotland	ton	2/5/11½ 0/0/0
Bar, Welsh, in London		5/15/0 5/17/6
Do. do. at works in Wales		5/10/0 5/12/6
Do. Staffordshire, in London		5/15/0 6/10/0
COPPER—British cake and ingot		52/10/0 52/0/0
Best selected ..		52/15/0 53/0/0
Sheets, strong..		59/0/0 0/0/0
Chili bars		49/2/6 0/0/0
YELLOW M'TAL	lb	0/0/5 0/0/5¾
LEAD—Pig, Spanish	ton	10/17/5 11/0/0
English com. brands		11/2/6 11/5/0
Sheet, English 6 lbs. per sq. ft. and upwards ..		12/2/6 12/5/0
Pipe		12/10/0 0/0/0
ZINC—English sheet	ton	20/10/0 0/0/0
Vieille Montagne		21/6/0 0/0/0
Spelter		17/10/0 17/12/6
TIN—Straits		60/11/3 0/0/0
Australian		61/0/0 0/0/0
English Ingots..		64/0/0 64/1/0
Banca		61/10/0 62/0/0
Billiton		60/15/0 61/0/0
OILS.		
Linseed	ton	16/2/6 16/7/6
Cocoanut, Cochin		26/10/0 0/0/0
Do. Ceylon		22/15/0 0/0/0
Palm, Lagos		20/10/0 0/0/0
Rapeseed, English pale		24/5/0 24/10/0
Do. brown		23/0/0 23/5/0
Cottonseed ref. ..		16/0/0 16/10/0
Oleine		17/0/0 18/10/0
Lubricating U.S.		0/6/0 0/7/3
Do. black		0/4/9 0/6/6
TAR—Stockholm	barrel	19/6 1/0/0
Archangel		0/14/6 0/0/0
TURPENTINE—(American)	ton	18/10/0 18/12/6

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender: and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

BOLTON-ON-DEARNE (Yorks.).—For the erection of school buildings, for the School Board. Mr. H. L. Tacon, architect, 11, Westgate, Rotherham. Quantities by the architect:—

Robt. Snell	£2,239 0 0	J. H. Bower	£2,140 0 0
Richd. Snell	2,219 10 0	G. H. Smith, Mexbro*	2,103 3 0
J. Tradewell	2,210 0 0	Jno. Wade†	1,885 0 0
J. Cooper	2,142 5 6		

* Accepted. † Withdrawn.

BURY (Lancs.).—For the erection of business premises, Silver-street. Mr. J. D. Mould, architect, Silver-street Chambers, Bury. Quantities by architect:—

Thompson & Brierley	£5,925	James Byrom	£5,875
John Tinline	5,900	Charles Brierley*	5,749

[All of Bury.]
* Accepted.

COLCHESTER. — For the erection of public conveniences, Cattle Market, for the Corporation. Mr. H. Goodyear, Borough Surveyor, Colchester:—

Geo. Dobson	£155	A. Diss, Stanwell-street, Colchester*	£122
R. Beaumont	136		
W. Chambers	124		

* Accepted.

CROYDON.—Accepted for erection of billiard-room and skittle-alley to "Swan and Sugar Loaf" inn, Brighton-road. Mr. A. Broad, architect, 3, High-street, Croydon:—

A. Bullock £831

[No Competition.]

EBBW VALE (Mon.).—For the erection of a vicarage, for the vicar of Ebbw Vale. Mr. Chas. J. Fox, architect, Newport, Mon.:—

W. T. Morgan	£1,685 0	J. Monks & Co	£1,369 10
W. Jones & Sons	1,677 0	D. J. Davies	1,390 0
J. D. Williams	1,460 0	A. E. Parfitt	1,365 0
T. Evand	1,432 0	S. Davies, Ebbw Vale*	1,328 0
C. H. Reed	1,400 0	D. W. Pugh	1,260 0

*Acceptance recommended.

EXETER.—For the erection of a Wesleyan Sunday-school chapel, class-rooms, &c., at St. Sidwells, for the trustees. Mr. Fred. J. Commin, architect, Exeter, in conjunction with Mr. Walter B. Coles, architect, Exeter. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

Mingo & Boon	£1,957	Setter Bros	£1 863
Stephens & Son	1,935	Ham & Passmore	1 814
G. Diggins	1,930	W. Wadman	1,743
W. Brealey	1,922	W. Gibson	1,700
Tree & Bolley	1,900	J. Blatchford	1,675
G. Herbert	1,883	Westcott & Austin*	1,600

*Accepted.

FINEDON.—For sewerage works, for the Finedon Urban District Council. Messrs. Mosley & Anderson, engineers and surveyors, Northampton:—

H. Weldon	£10,284 9 3	G. Henson	£6,213 0 0
Brown & Son	7,959 10 0	R. Cosford	5,810 0 0
R. Marriott, jun. ..	7,700 0 0	H. Martin, Northampton (accepted)	5,750 0 0
S. Hipwell	6,800 0 0		
T. Chapman	6,500 0 0		

GRANTHAM.—For erecting a Temporary Asylum, Grantham, for the Kesteven County Council. Mr. Herbert Kirk, County Surveyor, Sleaford:—

Hodson & Sons	£1,640	Rudd & Son, Grantham*	£1,500
Wartnaby & Son	1,569		
Hockley & Son†	1,515		

* Accepted.
† Late.

GRIMSBY.—For laying pipe sewers, Wellington and Ainslie-streets, for the Urban Sanitary Authority. Mr. M. Petree, Borough Engineer, Grimsby:—

Hewins & Goodhand	£640 8 6	A. Brunton & Son, Hull (accepted)....	£305 13 6
H. B. & A. F. James	550 0 0		

HOYLAND NETHER (Yorks.).—For the enlargement of school buildings, Hoyland Common, for the School Board. Mr. W. J. Sykes, architect. Hoyland Nether:—

Masonry, &c — A. Hemingway, Hoyland Common	£237 4 8
Joinery.—H. Breadley, Hoyland Common.....	155 10 0
Slating and Plastering.—C. Chadwick & Son, Victoria-street, Sheffield ..	51 15 0
Plumbing, Glazing, and Painting.—W. H. Rawlin, Hoyland Nether ..	65 0 0

LONDON.—For the erection of a new school at Campsbourne, Hornsey, for the Hornsey School Board. Mr. Howard Chatfeild Clarke, architect, 63, Bishopsgate-street Within. Quantities by Messrs. H. H. Leonard & Clarke:—

Leslie & Co., Limited	£22,970	Brown, Son, & Blomfield	£20,762
J. & M. Patrick	21,500	Kirk & Randall*	20,344
Lawrance & Sons	21,240	* Accepted.	
McCormick & Sons	20,950		

LONDON.—Accepted for the erection of eight houses on the Shalimar Estate, Acton. Mr. Edward Monson, architect, Acton Vale, W.:—

R. Nichols, Acton..... £3,120

LONDON.—For alterations and additions to Lamson factory, Canning Town, E. Mr. W. T. Walker, architect:—

Outhwaite & Son	£2,657	Reason	£2,499
Perry & Co.	2,599	Otway	2,442
Harris & Wardrop	2,499	Gregar & Son (accepted)	2,389

LONDON.—For the erection of a house and shop, Whalebone-lane, Stratford, E., for Messrs. Saville Bros., Limited. Mr. Fred. A. Ashton, architect, 3, Crooked-lane, E.C.:—

A. E. Symes	£1,977	W. G Maddison	£1,601
Hearle & Farrow	1,750	G. & H. Cocks (accepted)	1,689
W. Shurmur	1,746		

LONDON.—For the making up of Bridges-road, Newton-road, William-road, and Trevor-road, for the Wimbledon Urban District Council. Mr. C. H. Cooper, Surveyor and Engineer, Wimbledon:—

	Bridges-road.	Newton-road.	William-road.	Trevor-road.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
W. Adamson	275 0 0	359 0 0	359 0 0	359 0 0
J. Mowlem & Co., Grosvenor-wharf, Westminster, S.W.*	253 0 0	285 0 0	288 0 0	289 0 0
Robertson & Grant	301 0 0	331 0 0	330 0 0	335 0 0
Edmund Iles	262 15 0	311 13 0	308 13 0	320 0 0
Thomas Adams	285 10 2	346 2 2	343 10 2	344 11 10
W. Cunliffe	270 0 0	320 0 0	315 0 0	326 0 0

*Accepted.

LONDON.—For supply of sand for sewage filtration purposes, for the Urban District Council of Hendon. Mr. S. S. Grimley, Engineer:—

	Sea sand, to Hendon Station, carriage paid.	Leighton Buzzard sand, to Hendon Station, carriage paid.	Washed Thames sand, to Hendon Station, carriage paid.
	Per ton.	Per ton.	Per ton.
Joseph Arnold	—	8s. 0d.	—
H. Covington	6s. 3d.	—	8s. 9d.
G. Garside, Jun., Leighton Buzzard, Beds*	—	7s 3d.	—

* Accepted.

PAIGNTON.—For sanitary improvements at Primley House, Paignton, for Mr. J. F. Belfield. Messrs. Norman G. Bridgman & Walter H. Bridgman, architects, of Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

R. Harris	£365 0	G. Webber & Maunder	£290 15
C. & R. E. Drew	327 0	Hy. Webber & Son	292 0
E. Pike	300 0		

ROTHERHAM.—For the erection of a cricket pavilion on the cricket ground, for the Rotherham Town Cricket Club. Mr. H. L. Tacon, architect, 11, Westgate, Rotherham. Quantities by the architect:—

Geo. May	£375 0 0	Chadwick & Co.	£355 0 0
Ino. Tradewell	372 0 0	W. Bell, Rotherham*	315 0 0
Thos. Roper	363 1 6	* Accepted.	

ST. MARGARET'S (Isleworth).—For the erection of the Church of St. Margaret. Mr. Edward Monson, architect, Acton Vale, W.:—

J. W. Brooking	£5,387	Collinson, J. F.	£5,100
Lascelles & Co.	5,320	Pattinson & Sons, Whitehall, S. W.*	5, 4,972
Wisdom, W.	5,301	* Accepted.	
Exors. of the late T. Nye	5,125		

TEDDINGTON.—For the erection of additions to stabling at Teddington Hall, for Mr. F. Darrell. Mr. J. Charles Bourne, architect, 62 and 63, Basinghall-street, London, E.C.:—

H. F. Green & Co.	£689	J. F. Collinson	£525
C. P. Roberts	589		

TO CORRESPONDENTS.

A. S.—(Amounts should have been stated).

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items which have been duplicated for other journals are NOT DESIRED.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

PUBLISHER'S NOTICES.

Registered Telegraphic Address, 'THE BUILDER,' LONDON.

THE INDEX and TITLE-PAGE for VOLUME LXX. (Jan. to June, 1896) was given as a supplement with the number for July 11.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 9d. each, and

THE SEVENTIETH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence.

SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 3s. 6d. each.

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Terms for series of Trade advertisements, also for Special Advertisements on front page, Competitions, Contracts, Sales by Auction, &c., may be obtained on application to the Publisher.

SITUATIONS WANTED.

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PREPAYMENT IS ABSOLUTELY NECESSARY.

. Stamps *must not* be sent, but all small sums should be remitted by Cash in Registered Letter or by Postal Orders, payable to DOUGLAS FOURDRINIER, and addressed to the Publisher of "THE BUILDER," No. 46, Catherine-street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Front Page should be in by TWELVE noon on WEDNESDAY.

SPECIAL.—ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before 10 a.m. on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS Advertising in "The Builder," may have *Replies addressed to the Office*, 46, Catherine-street, Covent Garden, W.C. *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES, { NINEPENCE EACH. By Post (carefully packed), 1s.

SUBSCRIBERS in LONDON and the SUBURBS, (by prepaying at the Publishing Office, 19s. per annum or 4s. 9d. per quarter), can ensure receiving "The Builder," by *Friday Morning's Post*.

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"THE BUILDER" is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 19s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances (payable to DOUGLAS FOURDRINIER) should be addressed to the publisher of "THE BUILDER," No. 46, Catherine-street W.C.

THE BATH STONE FIRMS, Ltd.
BATH,
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE.
The attention of Architects is specially invited to the durability and beautiful COLOUR of this material. Quarries well opened. Quick despatch guaranteed. Stonework delivered and fixed complete. Samples and estimates free. Address, The Ham Hill Stone Co., Norton, Stoke-under-Ham, Somerset. London Agent: Mr. E. A. Williams, 16, Craven-st., Strand, W.C. [ADVT.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.

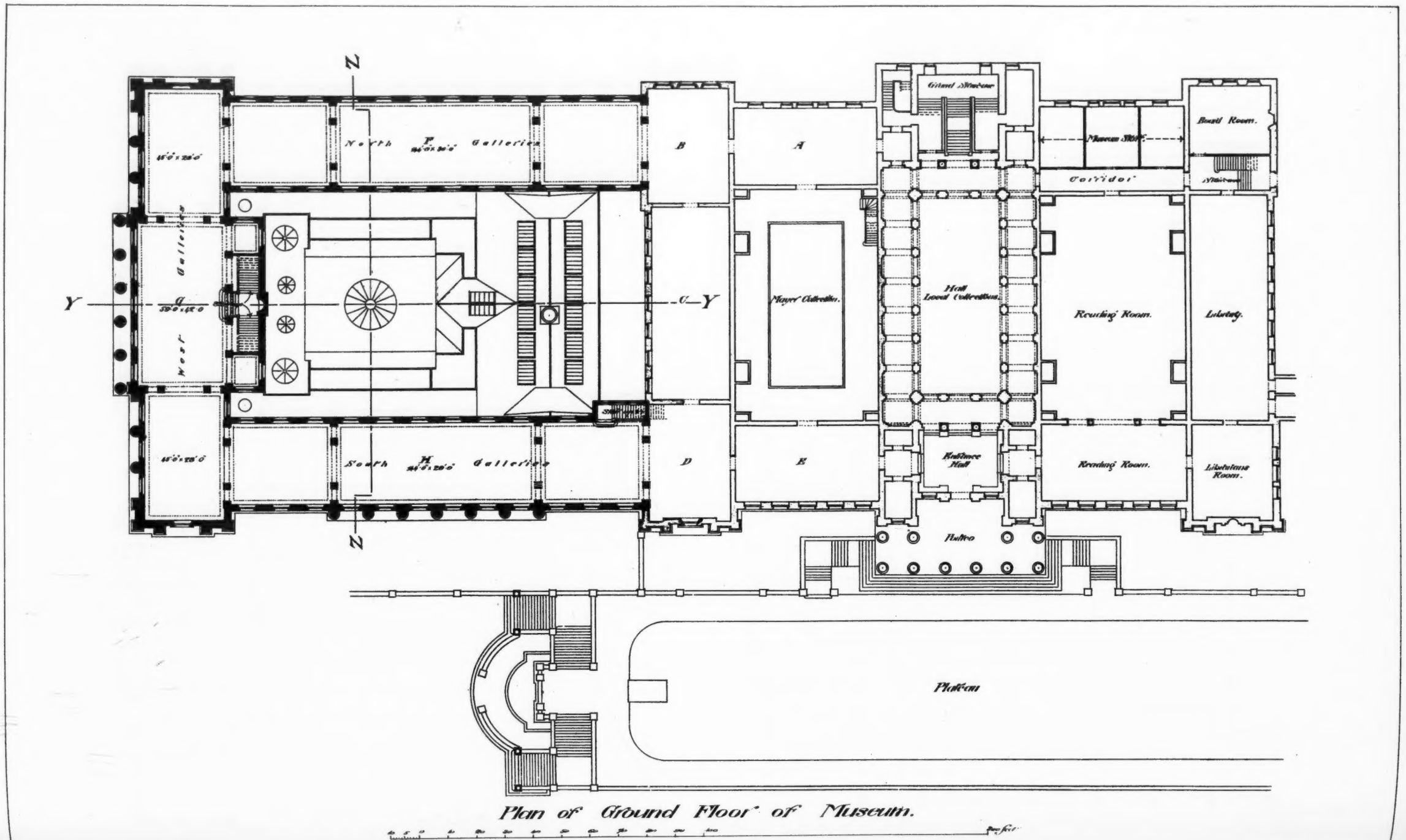
SPRAGUE & CO.,
PHOTOLITHOGRAPHERS,
4 & 5, East Harding-street,
Fetter-lane, E.C. [ADVT.

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.
METCHIM & SON, 20, Parliament-st. S.W.
"QUANTITY SURVEYORS' TABLES,"
For 1896, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.

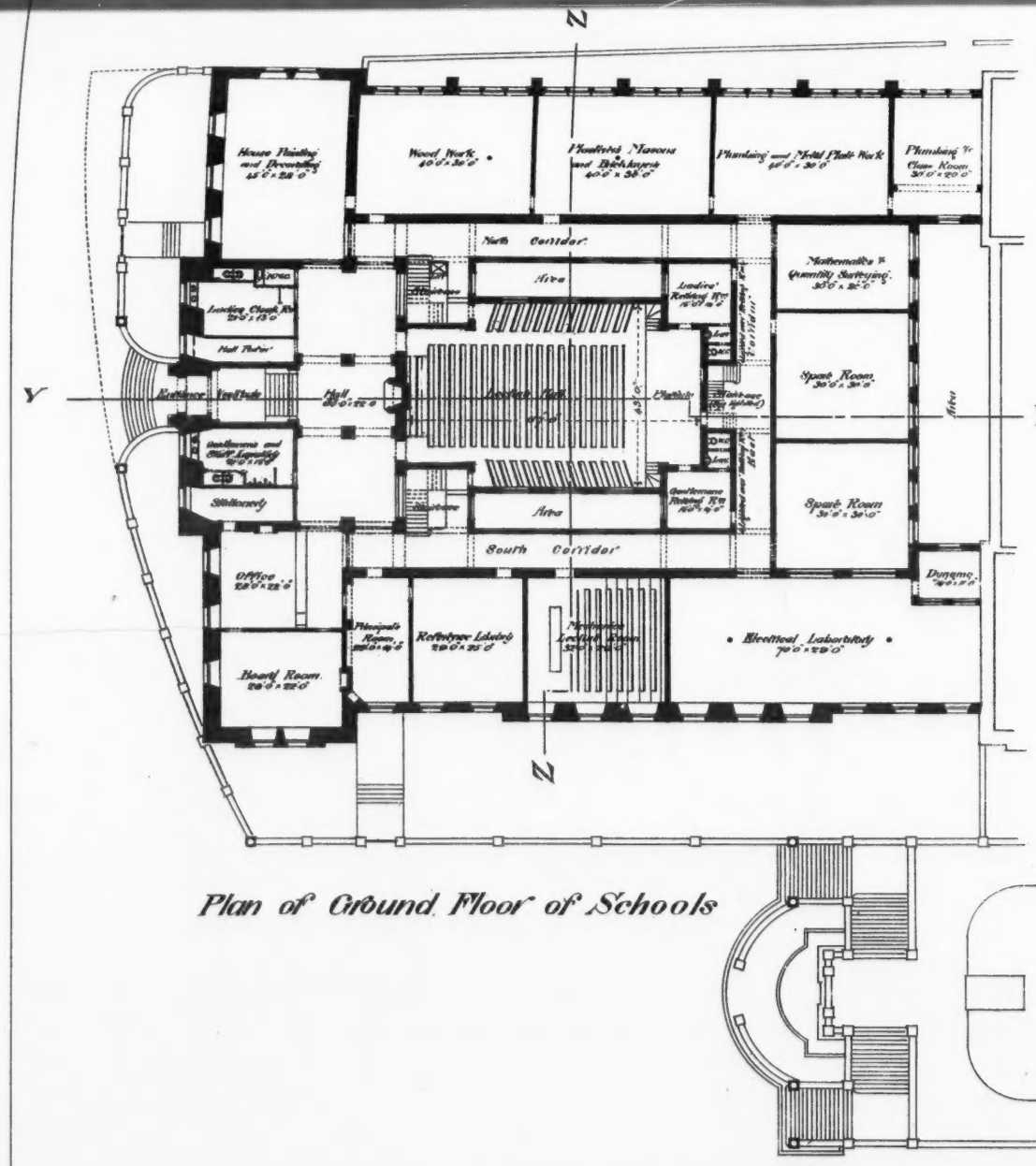
J. J. ETRIDGE, Jr.
SLATE MERCHANT,
SLATER and TILER.
ESTIMATES GIVEN FOR
SLATING AND TILING,
To be Executed by Contract in any part of ENGLAND.
Penrhyn - Bangor,
Oakeley - Portmadoc,
And other description of Slates ready for immediate delivery to any Railway Station.
Applications for Prices, &c., to
BETHNAL GREEN SLATE WORKS,
BETHNAL GREEN, LONDON, E.

THE
French Asphalte
COMPANY,
Suffolk House, Cannon-street, E.C.
SUPPLY THE BEST MATERIAL AND WORKMANSHIP FOR BUILDINGS, DAMP COURSES, AREAS, ROOFS, WASH'HOUSE AND DAIRY FLOORS, &c., &c.
This Asphalte was chosen to be laid at Sandringham, on the new General Post Office, and other important buildings.

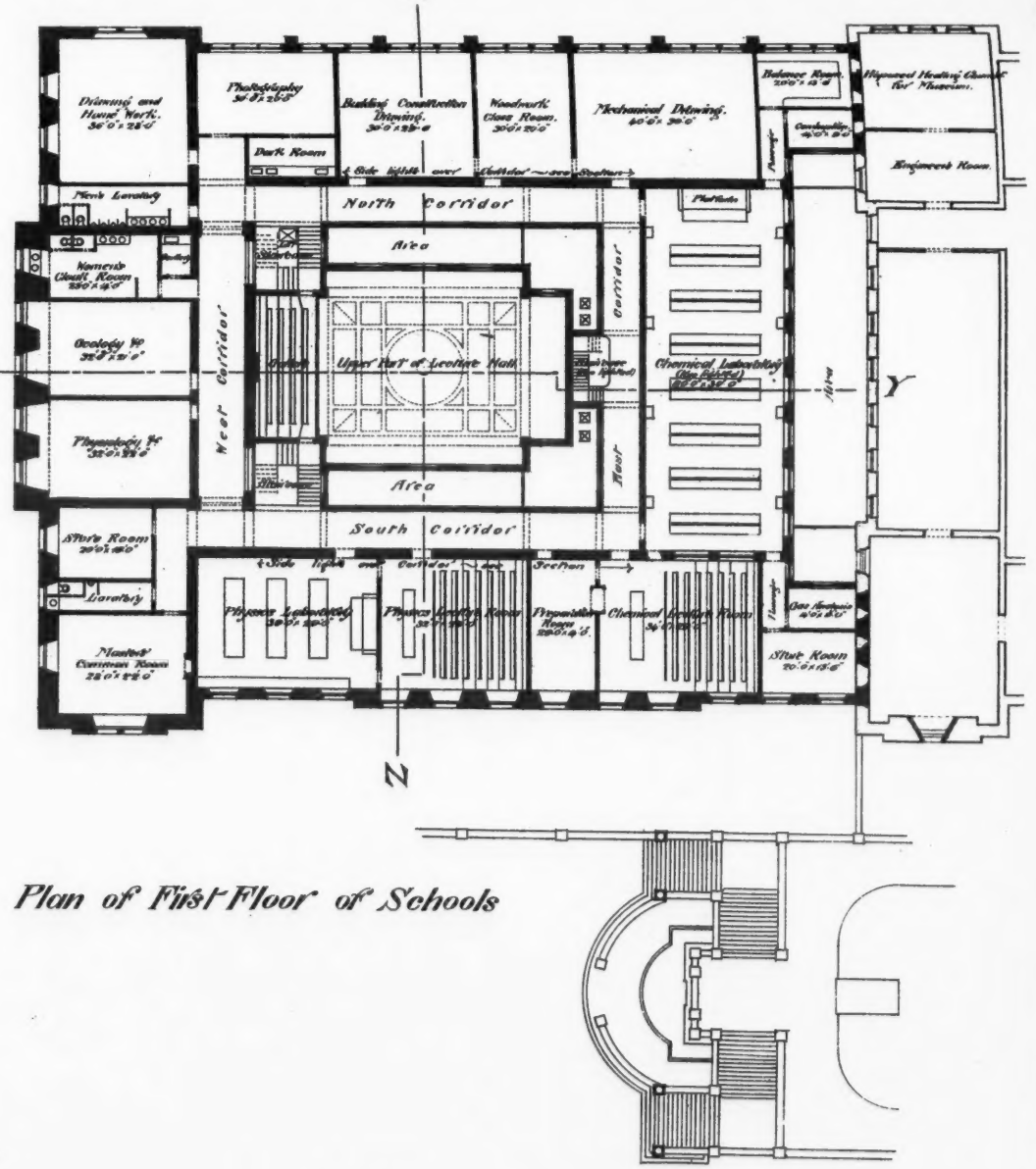
TWELVE GOLD AND SILVER MEDALS AWARDED.
IRON CISTERNS.
F. BRABY & CO.
VERY PROMPT SUPPLY.
LARGE STOCK READY.
Particulars on application.
CYLINDERS FOR HOT-WATER CIRCULATION.
LONDON:
352 to 364, EUSTON-ROAD N.W., and 218 and 220, HIGH-STREET, BOROUGH, S.E.
LIVERPOOL:
6 and 8, HATTON GARDEN.
GLASGOW:
47 and 49, ST. ENOCH-SQUARE.



Plan of Ground Floor of Museum.



Plan of Ground Floor of Schools

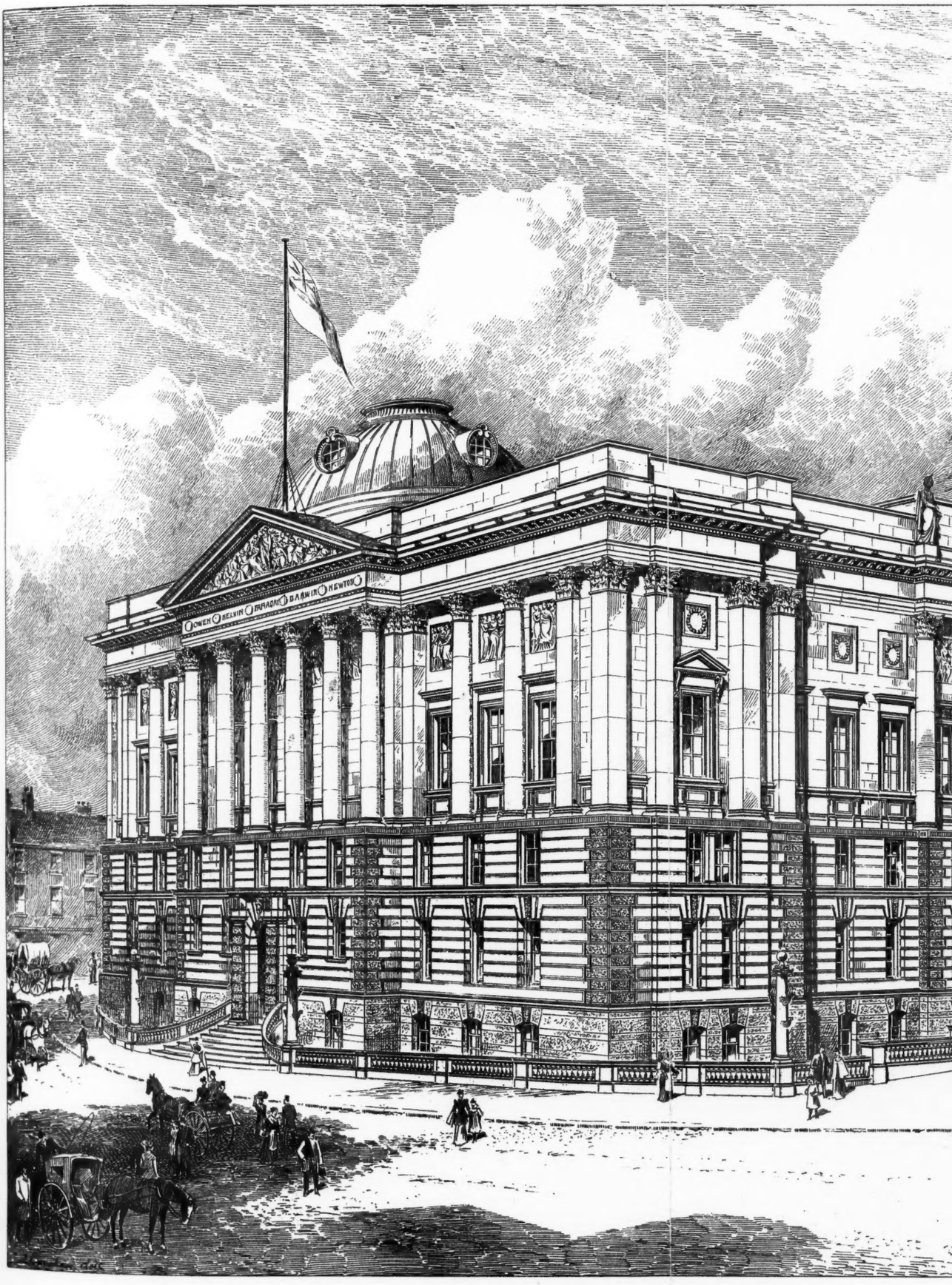


Plan of First Floor of Schools

PHOTO-LITHO. SIMACUE & Co 4 & 5 EAST HARDING STREET FETTER LANE, E.C.

COMPETITION FOR MUSEUM EXTENSION AND SCHOOL OF SCIENCE, LIVERPOOL.

SECOND PREMIATED DESIGN: BY MR. J. M. BRYDON, F.R.I.B.A.



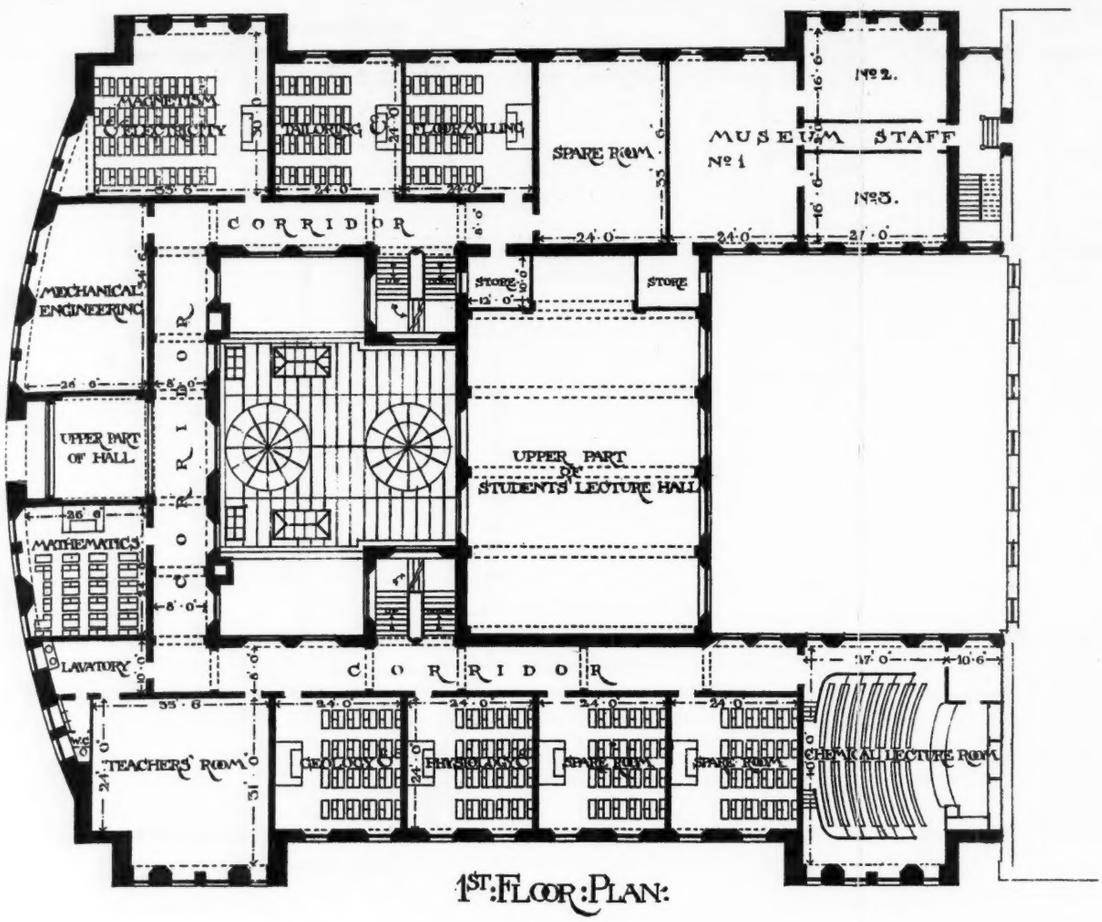
COMPETITION FOR MUSEUM EXTENS

SECOND PREMIATED DESIGN

PHOTO-LITHO. SPRAGUE & Co. 4 & 5 EAST HARDING STREET FETTER LANE, E.C.

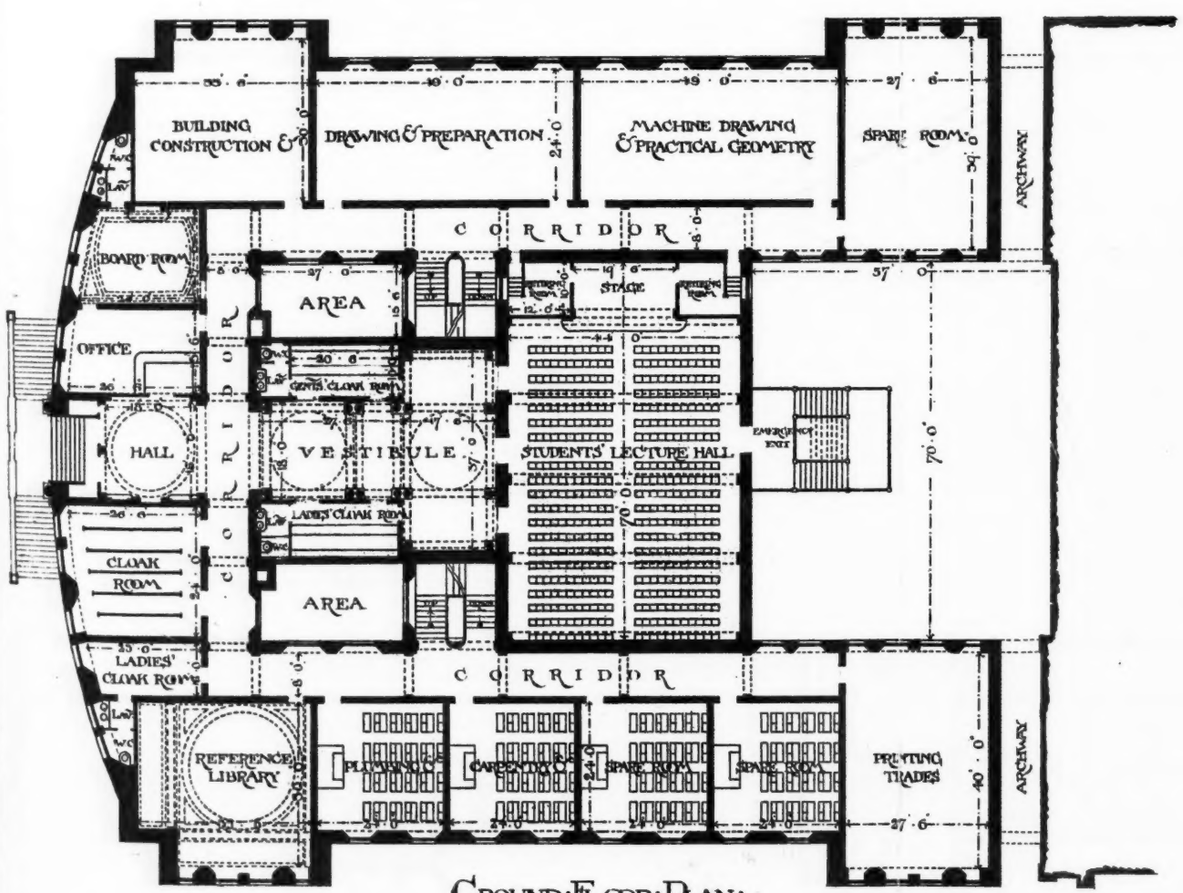
M EXTENSION AND SCHOOL OF SCIENCE, LIVERPOOL.

ATED DESIGN: BY MR. J. M. BRYDON, F.R.I.B.A.



1ST: FLOOR: PLAN:

SCALE OF FEET

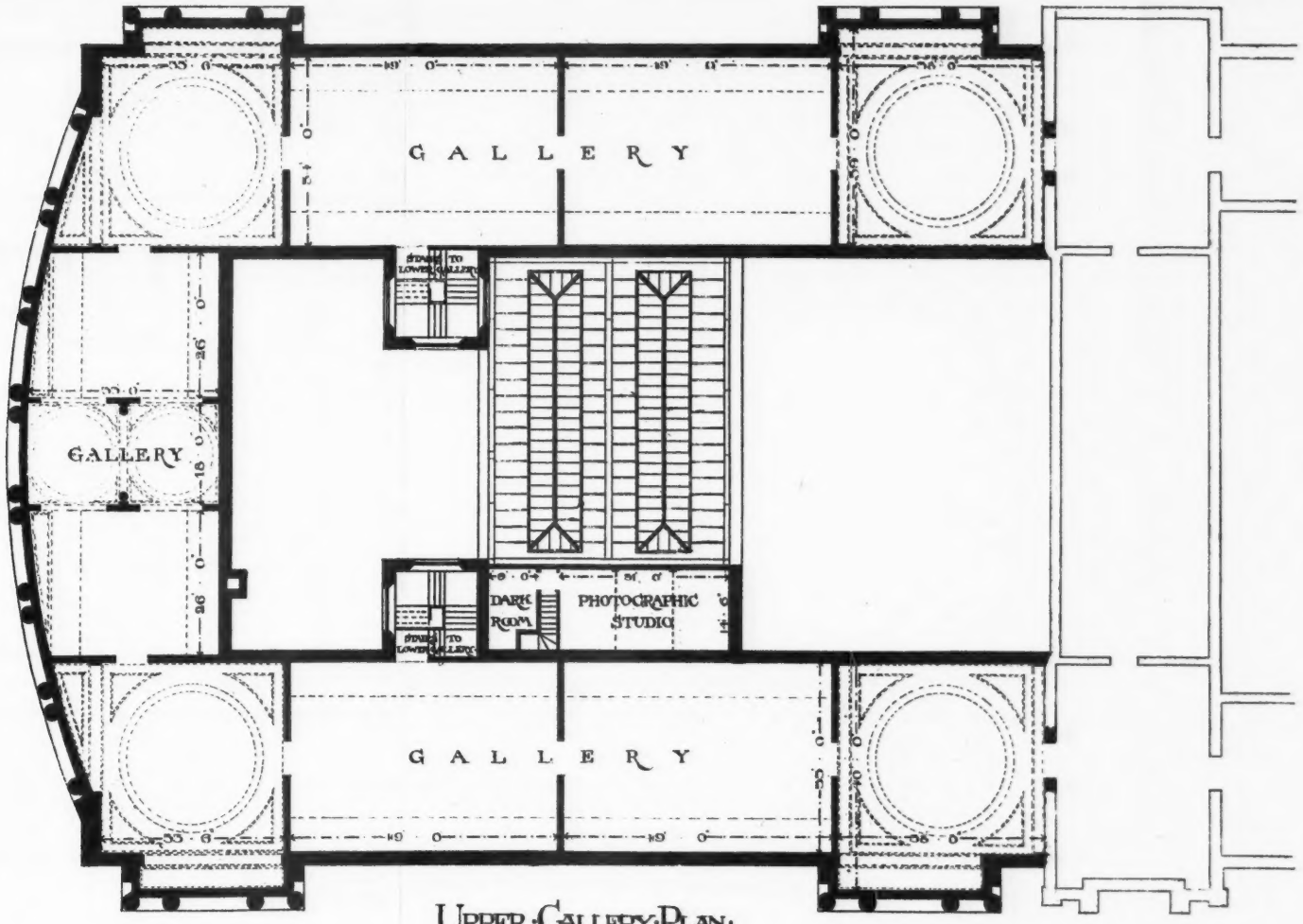


GROUND: FLOOR: PLAN:

PHOTO-LITHO. SPRAGUE & Co. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

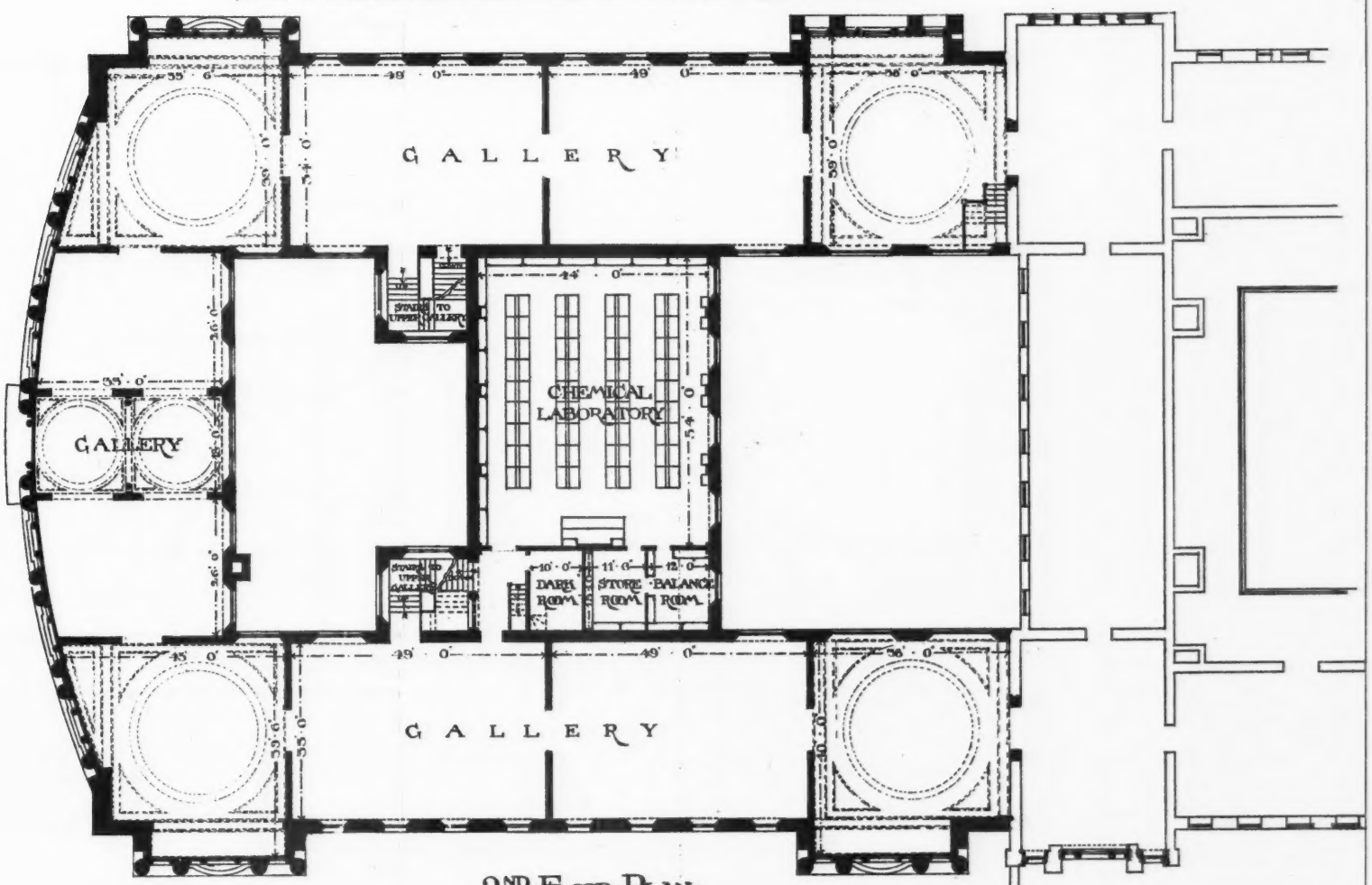
COMPETITION FOR MUSEUM EXTENSIO

FIRST PREMIATED DESIGN: BY



UPPER GALLERY PLAN.

SCALE OF FEET

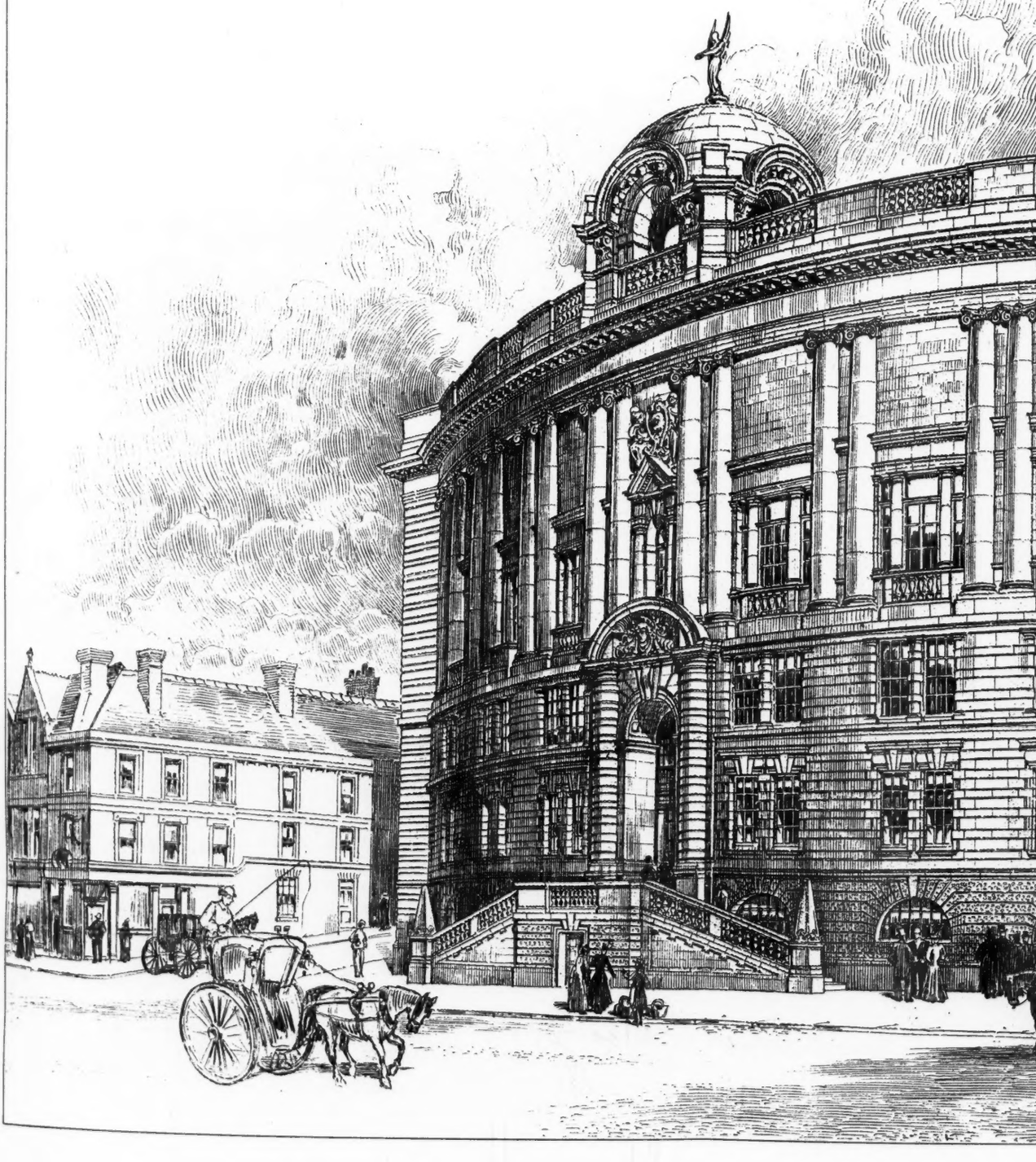


2ND FLOOR PLAN.

EXTENSION AND SCHOOL OF SCIENCE, LIVERPOOL.

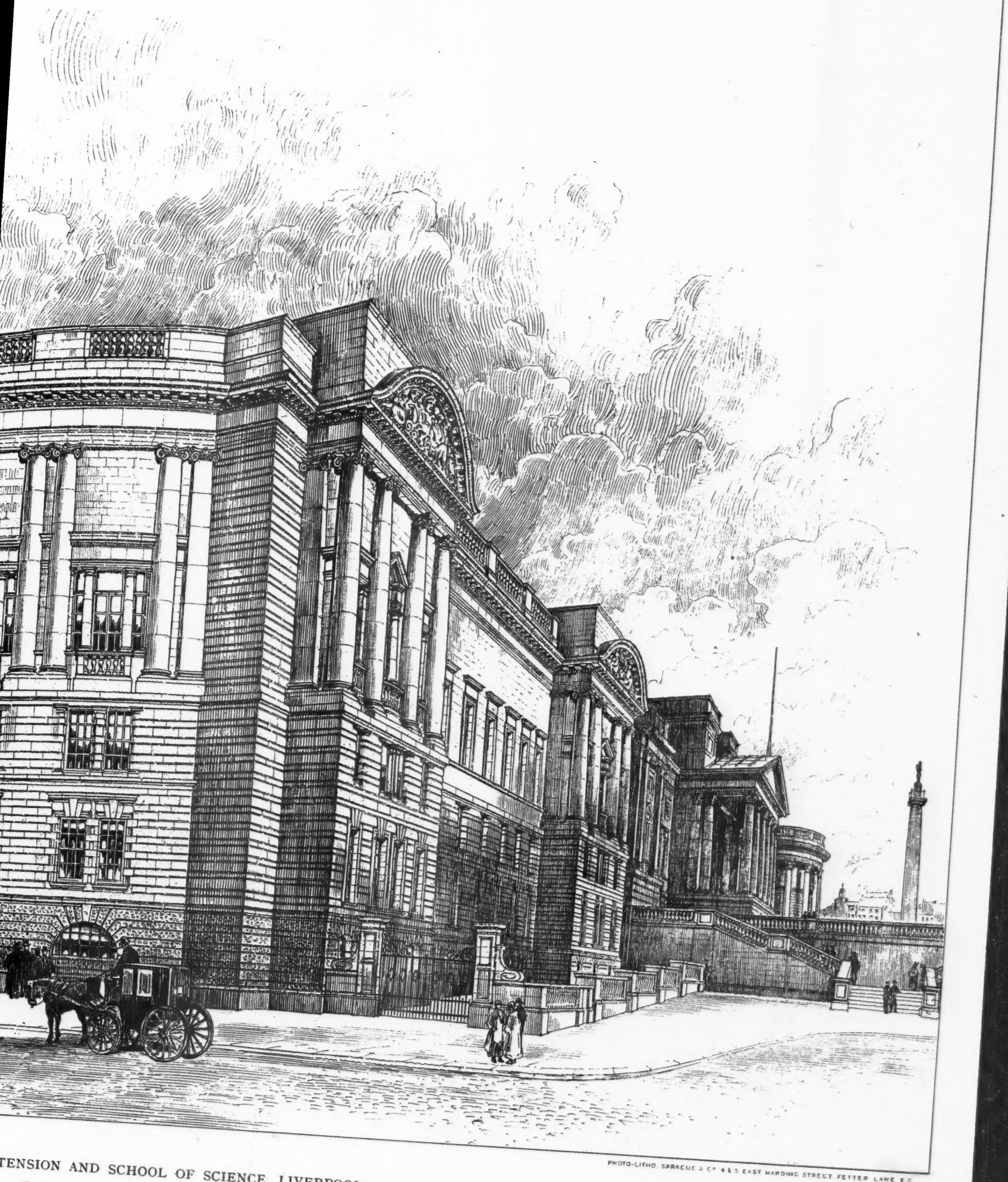
DESIGN: BY MR. E. W. MOUNTFORD, F.R.I.B.A.

EXTENSION: OF: MUSEUM: BUILDINGS: & NEW: TECHNICAL: SCHOOLS: CITY: OF: LIVERPOOL:



COMPETITION FOR MUSEUM EXTENSI

FIRST PREMIATED DESIGN: BY



TENSION AND SCHOOL OF SCIENCE, LIVERPOOL.
GN: BY MR. E. W. MOUNTFORD, F.R.I.B.A.

PHOTO-LITHO. SPRAGUE & Co 4 & 5 EASY HARDING STREET FETTER LANE E.C.